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Vol. 901 Number 2

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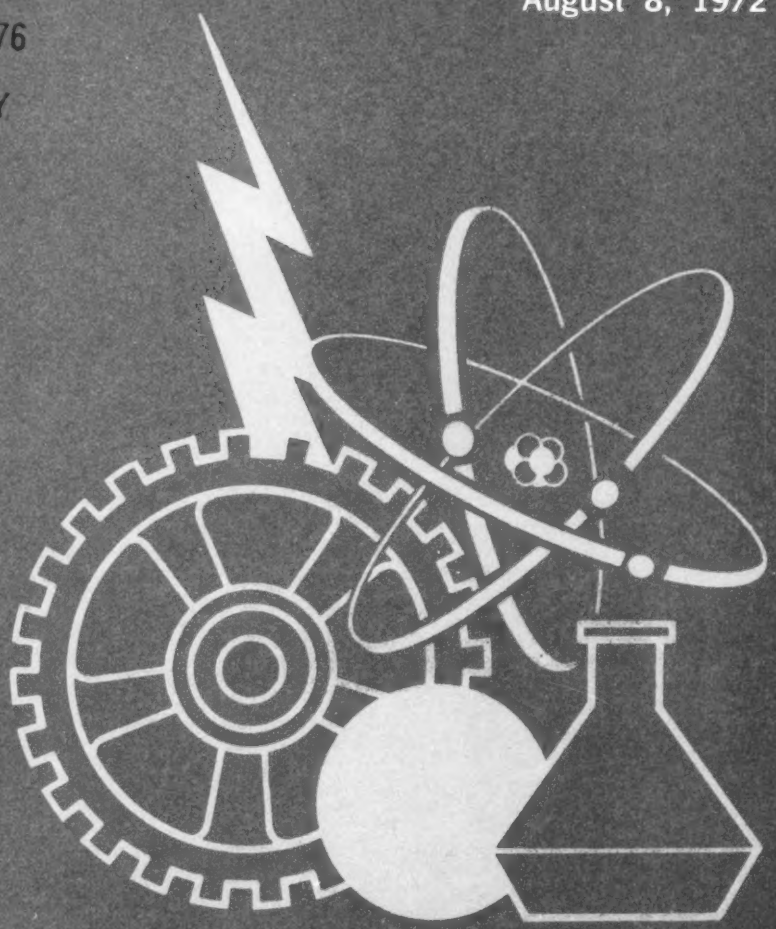
PATENTS

August 8, 1972



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OFFICIAL GAZETTE of the UNITED STATES PATENT OFFICE

August 8, 1972 Volume 901 Number 2

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PATENT OFFICE NOTICES

Patent Office Services

During recent months we have achieved significant progress in improving various aspects of the operations of the Patent Office, and we are hopeful that this progress will continue. At the same time, it is essential that we consolidate and maintain gains which we have achieved. Unfortunately, it appears that we have not done this in two areas of particular concern to attorneys and others dealing with the Patent Office—(i) filling mail orders for patent copies and (ii) supplying certified copies of patent applications.

Within the past few weeks, criticism by examiners and the public—which I very much appreciate—brought to light these operating deficiencies and also the inadequacy of internal operating information concerning them.

Analysis of these situations in depth was immediately begun, and an all-out remedial program was initiated to eliminate the causes of these difficulties and to improve our services in both of these areas. The purpose of this notice is to confirm to you our awareness of these problems and their importance, to inform you of our efforts to overcome them, and to provide a current report of their status.

Patent Copies

I am pleased to be able to inform you that, as of July 24, 1972, we were back on schedule with respect to the filling of orders for patent copies. These are now being filled within 10 days following receipt of the order in the Patent Office.

Problems of accuracy and quality in the filling of such orders remain, however, and our efforts in this connection have been somewhat handicapped by the pressure to achieve promptness. We fully appreciate the importance of these matters, and have adopted quality control techniques which we will increasingly emphasize to provide necessary improvements.

Certified Copies

Those experiencing difficulty in promptly obtaining certified copies should be aware of the availability in the Patent Office of "on-the-spot" service in this connection, so that this may be utilized in appropriate circumstances.

A notice concerning this service appeared in the OFFICIAL GAZETTE of December 21, 1971 as follows:

> "The certification desk, located in Crystal Plaza in the Attorneys and Record Room, Building 4, Room 1D01, provides 'on-the-spot' certifying service. This desk handles walk-in requests for certified copies of file wrappers, patented applications, patents, and selected papers from patented application files. The usual fee for this service ($1.00 per certification) may be applied at this location in the form of a paid cash order form, obtainable at the Cashier's Office adjacent the lobby of Building #2."

This service continues to be available to provide immediate service on orders for certified copies of patented files.

However, as concerns orders for certified copies of pending applications, delays are still being experienced with respect to both mail orders and walk-in requests, notwithstanding improvements resulting from our continuing efforts. We anticipate that such delays may continue to be experienced with respect to orders received during the next 30 days.

We are mindful of the importance of your being able to obtain certified copies promptly, especially where these are essential to obtaining the benefit of original filing dates with respect to patent applications filed abroad. We are determined to make every effort to meet your needs in this respect and, accordingly, are initiating for the duration of the present emergency period a special program as follows:

(1) Effective immediately, and continuing until further notice, a special "Expedited Service" for certified copies will be available through the Customer Relations Branch located adjacent the Public Search Room in the Patent Office. On request for such service, the Customer Relations Branch will locate and withdraw critically needed orders from the normal flow and fill them on a custom basis. This program will include special courier service between the production operations in the main building of the Department of Commerce in Washington and the Patent Office facilities at Crystal Plaza. This special "Expedited Service" may be requested in person, by mail, or by telephone (703–557–2003). No additional charge will be made for such service.

(2) Attorneys and others requesting certified copies are requested

(i) to file their orders, whenever possible, at least two (2) weeks in advance of the date when such copies are required, and
(ii) to specify, when filing such orders, the exact date by which such copies are required.

Compliance will provide us with necessary lead time and also enable us to establish necessary priorities among the orders to be expedited.

(3) Requests for "Expedited Service" should be requested *only* in cases of critical need. Special handling necessarily detracts from our capability to service other orders within a reasonable time, and indiscriminate use of "Expedited Service" would impair our ability to meet the needs of those having critically urgent problems.

It is our hope and expectation that regular service will soon be restored to an acceptable level. A notice terminating this special program will be published when that has been achieved. In the meantime, your cooperation and understanding will be appreciated.

ROBERT GOTTSCHALK,
July 25, 1972. *Commissioner of Patents.*

Patent Suits

Notices under 35 U.S.C. 290; Patent Act of 1952

3,253,595, Murphy and Keller, CARDIAC PACER ELECTRODE SYSTEM; **3,253,596,** J. W. Keller, Jr., CARDIAC PACER, **filed** Jan. 17, 1972, D.C., S.D. Fla. (Miami), Doc. 72–79–C–WM, *Mount Sinai Hospital of Greater Miami, Inc.* v. *Cordis Corp.*

3,253,596. (See 3,253,595.)

3,263,391, H. I. Wallsten, METHOD OF MANUFACTURING PACKAGES; **3,353,327,** Cutler, Warner and Hadden, GUSSET APPARATUS FOR BAG FORM AND FILL MACHINE AND METHOD, **filed** Oct. 26, 1971, D.C., N.D. Ga. (Atlanta), Doc. 15788, *Mira-Pak, Inc.* v. *The Woodman Company, Inc.* Settled by parties, Jan. 24, 1972.

3,265,092, Ely, Burley and Clement, FEP-FLUOROCARBON TUBING, **filed** Jan. 24, 1972, D.C. Del. (Wilmington), Doc. 4318, transferred from Dist. of S.C. where the action number was 71–483, *Penntube Plastics Company* v. *Fluorotex, Inc. and Fluorodynamics, Inc.*

3,302,647, A. E. Marsan, SEALING PAD FOR A POST-SURGICAL DRAINAGE POUCH, **filed** Sept. 3, 1971, D.C., M.D. Fla. (Tampa), Doc. 71–406–C, *Hollister Incorporated* v. *Howmet Corporation.* Defendant, Howmedica, Inc. et. al. are enjoined from further infringement of said patent, except as authorized or licensed by plaintiff, Hollister, Inc., Feb. 23, 1972.

3,309,850, Glass, Hale and Bernhardt, HAY HARVESTING MACHINE; **3,325,981,** Glass and Hale, same; **3,375,643,** McCarty and Glass, HARVESTING DEVICE; **3,383,844,** Glass, Hale and McCarty, DEFLECTOR STRUCTURE; **3,386,233,** Glass and McCarty, IMPLEMENT FRAME; **D. 204,995,** Kermes and Glass, MOWER-CRUSHER, **filed** Mar. 13, 1969, D.C., N.D. Ill. (Chicago), Doc. 69c547, *Sperry Rand Corporation* v. *Oliver Corporation.* Consent decree, cause dismissed without projudice and present record preserved, June 15, 1971.

3,309,893, Heffler and Collins, SHIPPING CONTAINER, **filed** Nov. 30, 1971, U.S. Ct. of Cl. (Washington, D.C.), Doc. 849–71, *Phillips-Foscue Corp* v. *The United States of America.*

3,313,443, Dial, Habegger and Kays, FLOATING COVER FOR A LIQUID STORAGE RESERVOIR, **filed** Jan. 4, 1971, D.C.N.J. (Newark), Doc. 1–71, *Globe Linings, Inc., and Howard D. Webb* v. *Revere Plastics, Inc.* Consent judgment declaring patent valid and for damages in favor of plantiff, Feb. 16, 1972.

3,322,127, C. M. Sachs, ANTI-CREEP BRASSIERE, filed Feb. 10, 1972, D.C., M.D.N.C. (Greensboro), Doc. C–40–G–72, *International Playtex Corporation* v. *Gem Dandy, Inc.*

3,325,981. (See 3,309,850.)

3,353,327. (See 3,263,391.)

3,375,177, B. Rand, VAPOR DEGREASING WITH SOLVENT DISTILLATION AND CONDENSATION RECOVERY, filed Jan. 26, 1972, D.C., E.D. Pa. (Philadelphia), Doc. 72–189, *Detrex Chemical Industries, Inc.* v. *Autosonics, Inc.*

3,375,643. (See 3,309,850.)

3,383,844. (See 3,309,850.)

3,386,233. (See 3,309,850.)

3,397,933, W. K. Strong, PROCESS FOR PREPARING FROZEN FRENCH FRY POTATO SEGMENTS, filed Dec. 16, 1971, D.C., E.D. Wash. (Yakima), Doc. 2790, *McDonald's System, Inc.* v. *Lamb-Weston, Inc.*

3,406,618, B. Bowman, METHOD OF MANUFACTURING BRICKS, TILES, COBBLESTONES AND THE LIKE DIRECTLY ON THE GROUND TO BE COVERED, filed Jan. 21, 1972, D.C., C.D. Calif. (Los Angeles), Doc. 72–149–MML, *Bomanite Corp.* v. *Edward F. Shea, Jr.*

3,407,617, Wischmeyer and Hoffman, METHOD OF REMOVING DISSOLVED WAX FROM A REFRIGERANT, filed Oct. 4, 1971, D.C., E.D. Mo. (St. Louis), Doc. 71C612(4), *Emerson Electric Co.* v. *Sporlan Valve Co.*

3,432,793, Muska, Schacker and McHattie, GROUNDING CONNECTION FOR ELECTRICAL UNIT, filed Feb. 29, 1972, D.C., N.D. Ill. (Chicago), Doc. 72c506, *William A. Muska et al.* v. *Wholesale Electrical Distributors et al.*

3,473,091, Morris and McDonald, GROUND LEAKAGE DIFFERENTIAL PROTECTIVE APPARATUS, filed Mar. 23, 1971, D.C., N.D. Calif. (San Francisco), Doc. C71–554, *Rucker Co.* v. *Harvey Hubbell, Inc.*

3,477,170, V. D. Lilienstern, RETRACTABLE HAIR DOLL, filed May 13, 1971, D.C., C.D. Calif. (Los Angeles), Doc. 71–1165–F, *Mattel, Inc.* v. *F. W. Woolworth, Inc.*

3,535,682, Dykaar and Stein, WAVEFORM RECOGNITION SYSTEM, filed Mar. 28, 1972, D.C., E.D. Va. (Alexandria), Doc. 141–72–A, *Lundy Electronics & Systems, Inc.* v. *Optical Recognition Systems, Inc.*

3,574,382, C. C. Wetzel, TRAILER LIFTING AND DUMPING APPARATUS, filed Mar. 30, 1972, D.C., E.D. Mich. (Bay City), Doc. 3187, *Clifford C. Wetzel* v. *Frito-Lay, Inc.*

3,575,678, W. F. Barton, REED SWITCH ASSEMBLY, filed Feb. 11, 1972, D.C., N.D. Ill. (Chicago), Doc. 72c369, *Grigsby Barton, Inc.* v. *Magnecraft Electric Co.*

3,594,021, R. M. Williams, EXPANSION JOINT, filed Mar. 30, 1972, D.C., W.D. Mich. (Grand Rapids), Doc. G78–72–CA5, *Genova Products, Inc.* v. *Charles Smith.*

D. 204,995. (See 3,309,850.)

Certificates of Correction for the Week of Aug. 8, 1972

D. 222,821	3,629,170	3,639,715	3,649,615
3,374,960	3,629,238	3,639,766	3,649,694
3,408,145	3,629,709	3,639,770	3,649,814
3,496,041	3,630,843	3,640,708	3,650,622
3,513,668	3,630,970	3,640,726	3,650,816
3,518,503	3,631,164	3,640,935	3,651,508
3,536,694	3,631,183	3,640,936	3,651,910
3,554,795	3,631,233	3,641,084	3,652,088
3,576,549	3,631,421	3,641,105	3,652,243
3,580,024	3,631,740	3,641,529	3,652,302
3,580,747	3,632,578	3,641,560	3,652,379
3,596,228	3,632,673	3,641,717	3,652,410
3,596,285	3,632,766	3,641,797	3,652,464
3,601,475	3,632,948	3,642,347	3,652,493
3,601,856	3,633,092	3,642,518	3,653,061
3,602,052	3,633,106	3,642,778	3,653,587
3,603,189	3,633,367	3,642,956	3,653,934
3,605,592	3,633,880	3,643,095	3,654,705
3,607,822	3,634,089	3,643,697	3,654,811
3,609,141	3,634,144	3,643,773	3,655,177
3,609,653	3,634,252	3,644,372	3,655,332
3,610,576	3,634,295	3,644,414	3,655,374
3,611,505	3,634,507	3,644,511	3,655,528
3,614,903	3,634,543	3,644,748	3,655,734
3,616,545	3,634,670	3,645,125	3,655,822
3,616,632	3,635,298	3,645,252	3,656,213
3,617,521	3,635,828	3,645,679	3,656,264
3,617,994	3,635,954	3,645,822	3,656,637
3,619,661	3,635,994	3,645,907	3,656,856
3,620,719	3,636,705	3,646,209	3,657,047
3,621,161	3,637,288	3,646,510	3,657,048
3,621,214	3,637,459	3,646,665	3,657,182
3,622,017	3,637,997	3,647,343	3,657,237
3,622,367	3,638,187	3,647,368	3,657,354
3,622,466	3,639,139	3,647,843	3,657,635
3,624,247	3,639,184	3,647,856	3,657,741
3,624,788	3,639,312	3,647,923	3,658,156
3,625,218	3,639,389	3,648,545	3,658,492
3,625,632	3,639,522	3,648,550	3,661,005
3,626,182	3,639,637	3,649,163	3,663,417
3,626,700	3,639,708	3,649,264	3,670,089
3,626,738			

Patent Numbers for Which No Patents Exist

Issue of August 8, 1972

3,681,793	3,682,124	3,682,581	3,682,955
3,681,809	3,682,155	3,682,587	3,682,958
3,681,814	3,682,169	3,682,600	3,682,972
3,681,816	3,682,170	3,682,607	3,682,974
3,681,827	3,682,178	3,682,612	3,682,977
3,681,847	3,682,229	3,682,615	3,682,982
3,681,848	3,682,248	3,682,624	3,682,994
3,681,854	3,682,255	3,682,627	3,682,998
3,681,858	3,682,257	3,682,657	3,683,011
3,681,861	3,682,264	3,682,658	3,683,012
3,681,864	3,682,285	3,682,674	3,683,021
3,681,868	3,682,287	3,682,691	3,683,055
3,681,880	3,682,309	3,682,710	3,683,063
3,681,884	3,682,317	3,682,728	3,683,064
3,681,894	3,682,319	3,682,732	3,683,075
3,681,902	3,682,326	3,682,735	3,683,077
3,681,921	3,682,330	3,682,737	3,683,079
3,681,922	3,682,357	3,682,754	3,683,097
3,681,924	3,682,359	3,682,757	3,683,099
3,681,935	3,682,368	3,682,758	3,683,109
3,681,945	3,682,385	3,682,765	3,683,119
3,681,968	3,682,406	3,682,769	3,683,124
3,681,971	3,682,416	3,682,773	3,683,125
3,681,981	3,682,420	3,682,787	3,683,157
3,681,989	3,682,427	3,682,801	3,683,158
3,681,999	3,682,428	3,682,810	3,683,169
3,682,000	3,682,429	3,682,818	3,683,170
3,682,002	3,682,430	3,682,822	3,683,204
3,682,004	3,682,441	3,682,832	3,683,265
3,682,007	3,682,445	3,682,837	3,683,286
3,682,009	3,682,450	3,682,843	3,683,291
3,682,011	3,682,452	3,682,851	3,683,292
3,682,016	3,682,493	3,682,852	3,683,311
3,682,022	3,682,496	3,682,855	3,683,327
3,682,035	3,682,499	3,682,862	3,683,333
3,682,037	3,682,510	3,682,878	3,683,338
3,682,039	3,682,517	3,682,882	3,683,341
3,682,045	3,682,520	3,682,885	3,683,375
3,682,059	3,682,535	3,682,890	3,683,377
3,682,061	3,682,537	3,682,915	3,683,388
3,682,081	3,682,555	3,682,931	3,683,395
3,682,099	3,682,568	3,682,937	3,683,400
3,682,111	3,682,573	3,682,940	

PATENT EXAMINING CORPS

R. A. WAHL, Assistant Commissioner
Deputy Assistant Commissioner (Vacant)

CONDITION OF PATENT APPLICATIONS AS OF JULY 5, 1972

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	6-14-71
GENERAL ORGANIC CHEMISTRY, GROUP 120—I. MARCUS, Director Heterocylic; Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	5-21-71
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—L. J. BERCOVITZ, Director Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping, and Treating Processes.	8-02-71
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. P. KENT, Director Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	7-01-71
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—Director (Vacant) Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	3-01-71
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS AND RELATED ELEMENTS, GROUP 210—N. ANSHER, Director Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Miscellaneous.	7-26-71
SECURITY, GROUP 220—R. L. CAMPBELL, Director Ordnance, Firearms and Ammunition; Radar, Underwater Signalling, Directional Radio, Torpedoes, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	4-07-71
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—J. F. COUCH, Director Communications; Multiplexing Techniques; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	9-01-71
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—W. L. CARLSON, Director Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	9-20-71
PHYSICS, GROUP 280—Director (Vacant) Photography; Sound and Lighting; Indicators and Optics; Measuring and Testing; Geometrical Instruments.	5-05-71
DESIGNS, GROUP 290—R. L. CAMPBELL, Director Industrial Arts: Household, Personal and Fine Arts.	2-05-71
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—A. BERLIN, Director Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vechicles and Appurtenances; Railways and Railway Equipment; Brakes; Rigid Flexible and Special Receptacles and Packages.	7-16-71
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—D. J. STOCKING, Director Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus: Plastic Block and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders Woodworking; Tools; Cutlery; Jacks.	6-01-71
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—A. RUEGG, Director Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Stationery; Information Dissemination.	8-02-71
HEAT, POWER AND FLUID ENGINEERING, GROUP 340—M. M. NEWMAN, Director Power Plants; Combustion Engines; Fluid Motors; Pumps; Turbines; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Vaporizing; Temperature and Humidity Regulation; Machine Elements; Power Transmission; Fluid Handling; Lubrication; Joint Packing.	7-16-71
CONSTRUCTIONS, SUPPORTS, TEXTILES, CLEANING, GROUP 350—T. J. HICKEY, Director Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Receptacles; Supports; Cabinet Structures; Centrifugal Separations; Cleaning; Coating; Pressing; Agitating; Foods; Textiles; Apparel and Shoes; Sewing Machines; Winding and Reeling.	6-01-71

Expiration of patents: The patents within the range of numbers indicated below expire during July 1972, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents..... Numbers 2,712,131 to 2,714,200, inclusive
Plant Patents..... Numbers 1,404 to 1,407, inclusive

DEFENSIVE PUBLICATIONS

PUBLISHED AUGUST 8, 1972

Published at the request of the applicant or owner in accordance with the Notice of Dec. 16, 1969, 869 O.G. 687. The abstracts of Defensive Publication applications are identified by distinctly numbered series and are arranged chronologically. The heading of each abstract indicates the number of pages of specification, including claims and sheets of drawings contained in the application as originally filed. The files of these applications are available to the public for inspection and reproduction may be purchased for 30 cents a sheet.

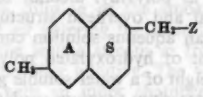
Defensive Publication applications have not been examined as to the merits of alleged invention. The Patent Office makes no assertion as to the novelty of the disclosed subject matter.

T901,017
CATALYTIC HYDROGENATION

Fredrick L. Hamb and John F. Stenberg, both of Kodak Park Works, 1669 Lake Ave., Rochester, N.Y. 14650

Filed Sept. 23, 1970, Ser. No. 74,850
Int. Cl. C07c *69/54*
U.S. Cl. 260—486 R
No Drawing. 18 Pages Specification

Compounds having the structure



wherein

is selected from a benzene nucleus and a cyclohexane nucleus;

represents a cyclohexane nucleus and Z is —H or —OH, may be prepared in high yields by reducing a dialkyl 1,2,3,4-tetrahydro - 2,6 - naphthalenedicarboxylate in the presence of hydrogen and a hydrogenation catalyst such as copper chromite. The reaction may be carried out at a temperature of about 100° C. to 350° C., preferably about 140° C. to 220° C. at a pressure of about 500 to 6000 p.s.i., preferably about 1500 to 3500 p.s.i.

In another embodiment of the invention, the compounds are prepared in a two-stage reduction, the first stage comprising reducing dialkyl 2,6-naphthalenedicarboxylate in the presence of hydrogen and a nickel catalyst, such as Raney nickel to provide high selective yields of dialkyl 1,2,3,4-tetrahydro-2,6-naphthalenedicarboxylate which is subsequently reduced in a second stage reduction as aforementioned. The first reduction may be carried out at a temperature of about 25° C. to 100° C., preferably 70° C. to 85° C. at a pressure of about 100 to 5000 p.s.i., preferably 1000 to 3000 p.s.i.

Novel monomers may be prepared from the monoalcohols resulting from the reduction of the invention by condensation with acrylic acids and esters thereof such as acrylic acid, methacrylic acid, ethacrylic acid, methyl methacrylate, ethyl methacrylate and ethyl acrylate. Homopolymers or copolymers of the novel monomers may be prepared by heating the monomers by themselves or with dissimilar polymerizable ethylenically unsaturated monomers in the presence of free-radical initiating catalysts such as hydrogen peroxide, benzoyl peroxide, lauroyl peroxide, sodium persulfate, potassium persulfate and peracetic acid, for example.

The polymers which can be prepared from the novel monomer compounds of the invention in the manner just described can be used to prepare photographic film supports using known techniques.

T901,018
POLYMERIC PHOTOSENSITIZERS

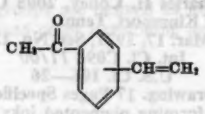
Franco Agolini, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Continuation of abandoned application Ser. No. 846,257, July 30, 1969. This application June 1, 1971, Ser. No. 149,082
Int. Cl. C08f *29/12*
U.S. Cl. 260—897
No Drawing. 14 Pages Specification

A crosslinked polymeric composition having an improved amount of polymer crosslinking throughout the composition consisting essentially of a blend of

(A) an alpha olefin selected from polyethylene or polypropylene, and

(B) a copolymer of an alpha olefin selected from ethylene or propylene and from 0.01 to 10 mole percent of vinyl acetophenone having the structural formula:



The process of crosslinking the above blend is carried out by exposing the blend to radiation having a wavelength of about 2,000 to 7,000 A. for a period of about 0.1 second to about 30 minutes. Short periods of exposure time are used with higher energy radiation, e.g., xenon radiation and longer periods of time are required when lower energy radiation sources are used, e.g., sun lamp.

Polymers having this improved degree of crosslinking show a corresponding improvement in properties such as dimensional stability, resistance to permanent stress deformation, resistance to stress cracking, as well as improved resistance to grease, oil and organic solvents. These improved properties make these polymers particularly useful to prepare shaped articles such as packaging material, films and tubing.

T901,019
RADIOGRAPHIC ELEMENTS AND BINDERS

George P. Kasper and John H. Taylor, both % Eastman Kodak Co., Kodak Park Division, Rochester, N.Y. 14650

Filed Mar. 4, 1971, Ser. No. 121,120
Int. Cl. G03b *41/16*
U.S. Cl. 250—65 R
No Drawing. 25 Pages Specification

Phosphorescent radiographic screens comprising a phosphor having a host matrix of at least one heavy metal ion

having a physical density greater than about 4.1 gm./cm.^{3} dispersed in a binder comprising a combination of (1) a copolymer of ethyl acrylate with a halo alkyl vinyl ether and (2) an alkyl methacrylate polymer, each in a weight ratio range of from about 2 to 1 to about 50 to 1 respectively are disclosed. Particularly effective phosphors include those whose emission is more than half in the ultraviolet region such as gadolinium activated yttrium oxide, europium activated barium strontium sulfate, lead activated barium sulfate and rare earth activated heavy metal ion phosphors.

The binder is typically represented by combinations of (1) n-butyl methacrylate resins and (2) haloalkyl vinyl ethers whose alkyl moiety contains 1 to 6 carbons, e.g. dry rubbers or elastomers.

Said screens, when combined with light sensitive radiographic elements, exhibit improved optical and physical characteristics. The screens can further comprise a support containing a 5(H)furanone ultra-violet light absorber, e.g. 5-benzylidene - 3 - carbamoyl-4-phenyl-2(5H)furanone.

Silver halide emulsions and elements useful in combination with the above screens can be chemically sensitized, e.g. with noble metal sensitizers alone or in combination with sulfur or selenium sensitizers. They can contain spectral sensitizers, incorporated color-forming couplers, incorporated developing agents, antifoggants, hardeners, plasticizers, coating aids, vinyl polymers, and other suitable photographic addenda such as described in U.S. Pat. 3,297,446 of Dunn issued Jan. 10, 1967 (columns 4 to 9).

T901,020
METHOD OF FORMING PIGMENTED INKS AND COATINGS

Glenna E. Burnett, 1701 John B. Dennis Bypass, A–18 37462, and Charles H. Coney, 2008 Canterbury Road 37660, both of Kingsport, Tenn.

Filed Mar. 17, 1971, Ser. No. 125,328
Int. Cl. C09d *11/00*
U.S. Cl. 106—26
No Drawing. 17 Pages Specification

A method of forming pigmented inks and coatings by the use of wet pigment cake, cellulose propionate and a liquid which will dissolve, or in combination with water with dissolve the cellulose propionate, and will dissolve at least as much water as is contained in the wet pigment cake. The cellulose propionate is characterized by having from 0 to about 4.5% acetyl, a hydroxyl content of between about 4.4% and about 12%, a propionyl content of about 35% or more, and a viscosity of between about 0.02 second and about 20 seconds as measured by ASTM D–1343. The liquid is preferably an alcohol containing from 1 to 4 carbon atoms. The mixture preferably contains between about 2% and about 70% of pigment based on the weight of the cellulose propionate and between about 12.5% and about 40% water based on the weight of alcohol. The cellulose propionate is between about 5% and about 40% of the total weight of the solution. The necessity for drying the pigment is eliminated.

T901,021
COMPOSITION COMPRISED OF ULTRAHIGH MOLECULAR WEIGHT POLYETHYLENE CONTAINING CARBON BLACK

Barry H. Vernick, Newark, Del., assignor to Hercules Incorporated, Wilmington, Del.

Filed July 6, 1971, Ser. No. 160,147
Int. Cl. C08f *45/08*
U.S. Cl. 260—41 R
No Drawing. 14 Pages Specification

The addition of 0.05 to 1% by weight of carbon black to ultra high molecular weight polyethylene results in improved physical properties as well as extremely good RF heating characteristics. The improvement in physical properties appears as improvement in wet sand abrasion index, double notched Izod impact strength, tensile strength and yield strength. Improvements of 5 to 25% and more in each of these parameters have been observed due to the presence of carbon black.

T901,022
PROCESS FOR FOAMING AND GELLING HYDROXYLATED POLYMERIC MATERIAL

Bernard C. Lawes, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Continuation of application Ser. No. 846,619, July 31, 1969, which is a continuation of application Ser. No. 509,620, Nov. 24, 1965. This application Aug. 16, 1971, Ser. No. 172,275
Int. Cl. C08f *29/26, 47/08*
U.S. Cl. 260—2.5 L
No Drawing. 16 Pages Specification

The method of producing a gelled hydroxylated polymer foam, such as polyvinyl alcohol foam, which will adhere to vertical and overhead structures which comprises preparing an aqueous solution containing 1 to 15 percent by weight of hydroxylated polymer and 0.1 to 1.5 percent by weight of a water-soluble gelling agent precursor, such as potassium titanium oxalate or ferric chloride, and having a pH of not more than 5, mixing said solution with air in a foam generator thereby foaming said mixture, and contacting the resulting foam, at a point adjacent to the point at which the foam issues from the foam generator, with an alkaline pH modifying agent, such as ammonia or ammonium hydroxide, for example by injecting ammonia into the foam, in an amount sufficient to increase the pH of the foam to at least 7, whereby said foam becomes tacky within 2 seconds after contact with said alkaline agent and said foam gels.

T901,023
PRODUCTION OF AMMONIUM PHOSPHATE

Horace C. Mann, Jr., 1942 Holiday Drive, Florence, Ala. 35630

Continuation-in-part of application Ser. No. 754,465, Aug. 21, 1968. This application Sept. 23, 1971, Ser. No. 183,268
Int. Cl. C05b *7/00*
U.S. Cl. 71—34
No Drawing. 22 Pages Specification

Production of molten ammonium phosphate melts containing from about 2 to 24 percent of their P_2O_5 as polyphosphates without a drying step or a mechanical working step. The melt can be solidified in a variety of granulating apparatus since substantial amounts of mechanical shear type energy are not required when the polyphosphate content of the melt is maintained below about 25 percent, as taught in U.S. Pat. 3,578,433, Bottai et al., May 11, 1971, column 4, line 32 et seq.

Subsequent work indicates that the value of less than about 25 percent of the P_2O_5 as polyphosphate requirement to eliminate the necessity of applying mechanical shear energy to the melt after it is formed and before it is cooled and processed to ambient temperatures may vary somewhat over the range of between about 20 and 30 percent. Subsequent work indicates that as long as the range is from about 2 to about 20 percent polyphosphate in the melt the requirement for mechanical working is completely eliminated; that when the melt contains more than 30 percent of the P_2O_5 as polyphosphate mechanical working must be utilized; and that when the melt is between about 20 and 30 percent polyphosphate, there is sort of a gray area where some melts, depending on the type and source of acid used in preparing same, will require mechanical working whereas others will not.

T901,024
VENTED TOBACCO SMOKE FILTER CONTAINING METAL OXIDES

Cephas H. Sloan, Rte. 5 37460, and Gerald P. Morie, 2317 Briarcliff Road 37660, both of Kingsport, Tenn.

Filed Sept. 27, 1971, Ser. No. 184,195
Int. Cl. A24d *1/04*
U.S. Cl. 131—266
No Drawing. 6 Pages Specification

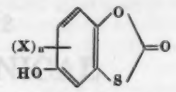
Tobacco smoke filter containing an additive of mixed metal oxides such as hopcalite for the selective removal of oxides of nitrogen (NO and NO_2) from tobacco smoke. The metal oxides may be primarily the oxides of manganese and copper, with small amounts of the oxides of chromium, iron, silver, cobalt, zinc, palladium and cadmium. The filter additives may be employed as granules of the metal oxide mixture, or as powders and they may be impregnated on a solid support such as alumina. The granules should have a surface area of 25 to 500 $m.^2/g.$ and pores with diameters ranging from 5 A. to 100 A. The additive may be applied to filtering material such as cellulose acetate tow or as one component of a multicomponent filter. Further, the filter may be vented to allow from 10 to 40% dilution of the smoke and should be designed so that air entering the filter through the vents does not enter the smoke stream in front of the chamber containing the filter additive. The venting is conveniently achieved with an inner chamber which channels fresh air around the periphery of the filter and into the smoker's mouth.

T901,025
NOVEL PHOTOGRAPHIC COUPLERS

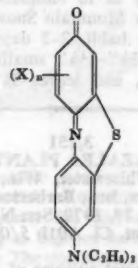
Philip Thiam Shin Lau, 345 St. Andrews Drive, Rochester, N.Y. 14626

Filed Dec. 3, 1971, Ser. No. 204,726
Int. Cl. G03c *1/40, 7/00*
U.S. Cl. 96—100
No Drawing. 37 Pages Specification

A class of color photographic elements containing azine magenta dye-forming 5-hydroxy-1,3-benzoxathiol-2-one color photographic couplers of the formula



wherein each X substituent is individually defined as a halo group; an alkyl group; an alkylene group; an aryl group; a thio- or oxy-connected heterocyclic group; an alkoxy group; a thioether group; an alkyl acyl group, an aryl acyl group, or otherwise defined as a ballasting moiety of the type commonly attached to couplers of a non-diffusible type designed to be incorporated in photographic emulsions; and wherein *n* is defined as an integer of 0–3; also light-sensitive silver halide emulsions containing a non-diffusible coupler within the above class, a color photographic developer composition containing a diffusible coupler within the above class; and a process for producing magenta photographic azine dyes of the formula



wherein

the substituent groups are defined as above, by contacting with oxidized color developing agent.

PLANT PATENTS

GRANTED AUGUST 8, 1972

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

3,250
CHRYSANTHEMUM PLANT

Walter H. Jessel, Jr., Doylestown, and William E. Duffett, Akron, Ohio, assignors to Yoder Brothers, Inc., Barberton, Ohio

Filed Dec. 21, 1970, Ser. No. 100,556
Int. Cl. A01h *5/00*

U.S. Cl. Plt.—78 **1 Claim**

1. A new and distinct cultivar of chrysanthemum characterized particularly as to uniqueness when compared to the parent cultivar Mountain Snow by its light yellow color, 2"–3" shorter habit, 2–3 days later response, 1" more plant spread, ¼"–1¼" smaller flowers, a flower petal 5/16" narrower, and leaves ¾" shorter.

3,251
AZALEA PLANT

Henry Motzkau, Whitewater, Wis., assignor to Yoder Brothers, Inc., Barberton, Ohio

Filed Dec. 29, 1970, Ser. No. 102,565
Int. Cl. A01h *5/00*

U.S. Cl. Plt.—57 **1 Claim**

1. A new and distinct cultivar of Azalea characterized particularly as to novelty when compared with the cultivar Valentine by its ability to be flowered all 12 months in a controlled flowering program, its excellent keeping qualities, its dark rose red color, its early-mid-season response, its ability to bud uniformly under a wide range of environmental conditions, its 15–20% larger diameter as a finished plant from liners of equal size, and its ability under usual conditions of not revegetating during the forcing period.

3,252
CARNATION PLANT

Thomas G. Harcharik, Salinas, Calif., and William E. Duffett, Akron, Ohio, assignors to Yoder Brothers, Inc., Barberton, Ohio

Filed Dec. 29, 1970, Ser. No. 102,567
Int. Cl. A01h *5/00*

U.S. Cl. Plt.—70 **1 Claim**

1. A new and distinct cultivar of carnation characterized particularly as to its uniqueness when compared to the parent cultivar Orchid Beauty by its faster rate of growth and response, coming into flower, peaking, and producing a return crop up to 2 weeks earlier than the parent cultivar, its production of a significantly lower percentage of flowers with split calyxes under similar environmental conditions, and its higher production of at least 2 flowers more per square foot per year under similar environmental conditions.

3,253
NEW AND DISTINCT VARIETY OF GLADIOLUS

John R. Larus, West Hartford, and Charles T. Larus, Avon, Conn., assignors to Selected Glads, Inc., New Albany, Ind.

Filed Dec. 30, 1970, Ser. No. 103,014
Int. Cl. A01h *5/00*

U.S. Cl. Plt.—85 **1 Claim**

1. A new and distinct variety of gladiolus plant, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of its salmon, orange color, and the ability to open one-half of its florets before the first one fades.

PATENTS

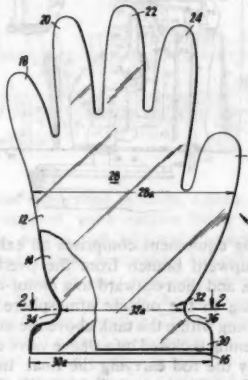
GRANTED AUGUST 8, 1972

GENERAL AND MECHANICAL

3,681,784
WRISTLET GLOVE

Donald C. Lindley, Tulsa, Okla., assignor to Poly-Version, Inc.

Filed June 4, 1970, Ser. No. 43,524
Int. Cl. A41d *19/02*
U.S. Cl. 2—162 1 Claim

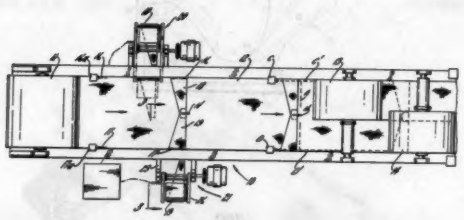


A disposable plastic film glove is provided with a reduced dimension intermediate the metacarpal and gauntlet portions in order to provide a tight fit around the wearer's wrist.

3,681,785
GARMENT PRODUCTION APPARATUS WITH AUTOMATIC SLEEVE PLACEMENT

Charles L. Truman, Hendersonville, N.C., assignor to Kimberly-Clark Corporation, Neenah, Wis.

Filed Feb. 23, 1971, Ser. No. 118,069
Int. Cl. A41d
U.S. Cl. 2—243 R 10 Claims



Apparatus for an automated garment production line for transferring to a moving web of material a pair of precut garment sleeves from stacks of sleeves on opposite sides of the web. A mechanism serving each stack employs a vacuum manifold, having a series of vacuum cups, located on a frame pivotally mounted to move between a sleeve pick-up position over the vertical stack of pre-cut sleeves to a deposit position over the moving web of garment material. As the frame swings, a drive mechanism causes the vacuum head to rotate, flipping the loose end of the sleeve across the web. The frame stops short of contact with the web holding the shoulder portion of the sleeve slightly off of the web until it registers with a line of adhesive carried by the web. The vacuum is then released and air pressure is introduced to blow the sleeve off the vacuum cups and onto the adhesive area on the moving web.

3,681,786
SOLID HUMAN PROSTHESIS OF VARYING CONSISTENCY

Henry W. Lynch, Racine, Wis., assignor to Medical Engineering Corporation, Racine, Wis.

Filed July 13, 1970, Ser. No. 54,443
Int. Cl. A61f *1/18, 1/22*
U.S. Cl. 3—1 3 Claims

A surgically implantable prosthesis formed from a single piece of inherently flexible elastomeric, physiologically inert material and a polyester felt pad embedded within the prosthesis and having an exposed surface to provide for ingrowth of body tissue. The one piece prosthesis is radiated to provide areas of different flexibility in accordance with the function to be performed by the prosthesis.

3,681,787
IMPLANTABLE BREAST PROSTHESIS FILLED WITH GELS OF DIFFERENT DENSITIES

Colette Perras, Montreal, Quebec, Canada, assignor to Moxness Products, Inc., Racine, Wis.

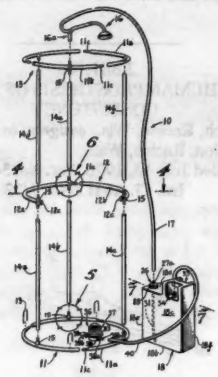
Continuation of Ser. No. 782,345, Dec. 9, 1968, abandoned.
This application March 26, 1971, Ser. No. 128,500
Int. Cl. A61f *1/24*
U.S. Cl. 3—36 8 Claims

A breast prosthesis having a porous polyester fabric for connecting the prosthesis to the chest wall and filled with layers of silicon gel material of varying viscosity to provide a more natural appearance of the breast.

3,681,788
PORTABLE SHOWERS

George T. Le Blanc; Clifford H. Le Blanc, both of P.O. Box 1914, Beaumont; Thomas A. Balmer, 725 Central Drive, and Bobbie G. Hurst, 5525 Concord, both of Beaumont, all of Tex., assignors to George T. Le Blanc and Clifford H. Le Blanc, by said Balmer and Hurst

Filed May 15, 1970, Ser. No. 37,710
Int. Cl. A47k *3/22, 3/23*
U.S. Cl. 4—147 7 Claims

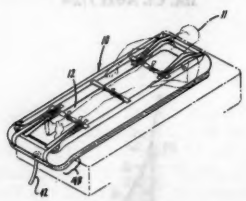


The invention discloses portable showers of the type to be set up by a body of water where swimmers upon exiting, may take a shower in clean fresh water with the swimmer manipulating the pumping of such clean water from a container thereby, as he stands under the shower head. A shower is comprised of at least a base and top frame members with risers of interfitted upper and lower portions in between.

3,681,789
COMPLIANT BATH AND RINSE RECEPTACLE

Edward Bott, 714 Del Ganado Road, San Rafael, Calif.

Continuation-in-part of Ser. No. 53,067, July 8, 1970, abandoned. This application Feb. 10, 1971, Ser. No. 114,210
Int. Cl. A47k *3/06*
U.S. Cl. 4—177 8 Claims

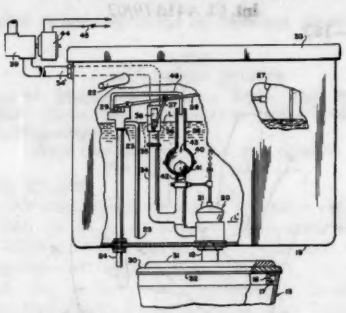


A self-supporting bathing receptacle of compliant material for bathing a person therein includes pliant side and end panels secured along the sides and ends of a bottom panel in a manner so as to be drawn upwardly into confronting relation to form side and end walls of a bathing basin. Pliable ribbons are secured to opposite side panels of the basin to extend across a person in the bathing zone so as to be secured together to hold the side panels in their upwardly extended position against the weight of water and the bather disposed within the bathing zone. Similarly pliable ribbons are also secured to opposite end panels of the basin for attachment across an upper portion of the bathing zone for holding the end panels in their upwardly extended positions against the weight of water and the bather disposed within the bathing zone. A high capacity drain disposed in a portion of the basin may be opened simply by rupturing a portion of the bathing basin.

3,681,790
VENTILATED WATER CLOSETS AUTOMATICALLY AFFORDING PROTECTION OF ITS VENTILATING MEANS FROM WATER DAMAGE

John Dooley, Madison Gardens Bldg., 30, Apt. 603, Oldbridge, N.J.

Filed June 15, 1970, Ser. No. 46,185
Int. Cl. E03d *9/04*
U.S. Cl. 4—216 7 Claims

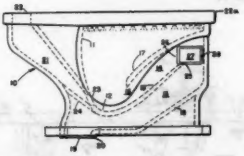


The ventilating equipment comprises an exhaust pipe extending as an upward branch from the overflow pipe, up through the tank and then outward to a motor-driven exhaust pump discharging to the outside atmosphere. The exhaust pipe has an opening within the tank above the maximum water lever, which opening is closed by a sleeve valve element linked for operation by the rod carrying the float. Intermediate its ends, the overflow pipe has a ball formation housing a free float which seats itself downwardly by vacuum action to close the overflow pipe while the latter is empty, but which float rises to a stop when water gets into the ball housing.

3,681,791
TOILET BOWL

Ethan A. Gray, 253 East Puente Street, Covina, Calif.

Filed Sept. 21, 1970, Ser. No. 73,964
Int. Cl. E03d *11/00, 11/10*
U.S. Cl. 4—257 4 Claims



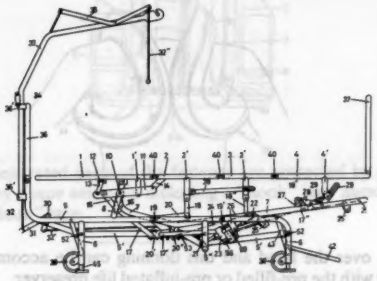
A toilet bowl having an external opening located adjacent the upper end of the dividing partition that separates the upwardly flowing channel from the downwardly flowing channel of the siphon, that makes possible easy inspection and cleanout of both channels and the bend at the end of said partition, including a closure member conforming with the shape of said opening and insertable and securable in said opening for sealing the opening when the toilet bowl is in normal operation.

3,681,792

ADJUSTABLE BEDS

Hans Korber, Vignette 47, 1530 Payerne, Switzerland

Filed March 19, 1970, Ser. No. 20,913
Claims priority, application Switzerland, March 19, 1969, 4354/69; Jan. 27, 1970, 1185/70
Int. Cl. A61g 7/00
U.S. Cl. 5—67 13 Claims



A bed has four supporting sections, a back, seat, thigh-support, and leg-support, each section being supported on a frame by lever means and adjacent sections being hinged together. A double lever controlling movement of the back and seat ensures that the seat remains horizontal and, as the seat is lowered by the weight of the occupant, the leverage changes to assist further lowering. The sections can be locked in a desired position or freed by engaging or disengaging a split nut on a threaded rod longitudinally movable upon hinging the sections. Motor means to drive the threaded rod may be provided.

3,681,793

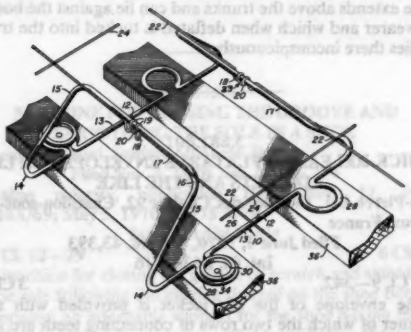
Patent Not Issued For This Number

3,681,794

BOX SPRING AND METHOD OF ASSEMBLY

Fred A. Ciampa; Angelo Serafini, and Louis Mazzarella, all of Boston, Mass., assignors to Standard Box Spring Co., East Boston, Mass.

Filed Dec. 14, 1970, Ser. No. 97,727
Int. Cl. A47c 23/02, 23/04
U.S. Cl. 5—247 9 Claims



A box spring includes a top mat comprising two groups of wires welded in right-angular relation, and a border frame. The box spring also includes a number of saddle-shaped springs, each of which has parallel bottom legs extending into upwardly sloping legs, and top transverse legs which connect each pair of the upwardly sloping legs together. One of the groups of wires in the top mat is formed with return bends which provide channels originally open toward the lower surface of the mat. The transverse top legs of the springs are received in these channels and secured by upsetting the channels. The channels are spaced apart in the top mat at distances equal to the desired spacing between the top transverse legs of the saddle springs; the top mat thus forms a jig for positioning the saddle springs during assembly of the box spring.

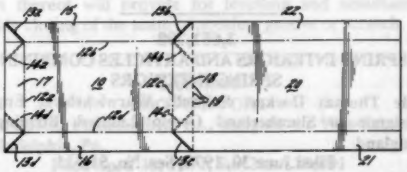
The bottom legs of the saddle springs may be attached to a wood bottom frame by means of disk fasteners which are received in loops formed in these legs.

3,681,795

DOUBLE FOUR CORNER CONTOURED BEDSHEET

Carlton L. Palenske, Neenah, and Lawrence E. Marks, Oshkosh, both of Wis., assignors to Kimberly-Clark Corporation, Neenah, Wis.

Filed Nov. 9, 1970, Ser. No. 87,930
Int. Cl. A47g 9/00; A47c 23/00
U.S. Cl. 5—334 C 4 Claims



A combination contoured disposable bedsheet, comprising a top and bottom sheet combined to form one-piece disposable bed sheeting. In one embodiment the top and bottom sheets are joined along the entire width of the sheeting with the fold line between the top and bottom sheets being located at the bottom side panel of the "foot" portion of the bottom contoured sheet, the top sheet being folded upwards and toward the "head" portion of the bottom sheet to establish a convention bedsheet arrangement.

3,681,796

PRODUCTION OF BATTING

George A. Watson, Box 2245, Davidson, N.C.

Division of Ser. No. 37,416, May 13, 1970, Continuation-in-part of Ser. No. 568,877, July 29, 1966, abandoned. This application Feb. 17, 1971, Ser. No. 116,052
Int. Cl. A47g 9/00; A47c 27/00
U.S. Cl. 5—337 2 Claims

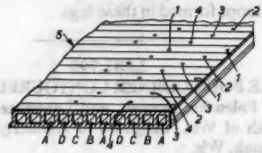
A batt of a cross-lapped fibrous web of continuous filaments, the batt having an internal wad of said web in randomly crumpled condition.

3,681,797

COVER MATERIALS FOR BODY-SUPPORTING ARTICLES

Jacob Messner, 66 Unterschauersberg, A-4600 Wels, Thalheim, Austria

Filed June 29, 1970, Ser. No. 50,402
Claims priority, application Germany, July 2, 1969, P 19 33 456.6
Int. Cl. A47c 23/00
U.S. Cl. 5—347 10 Claims



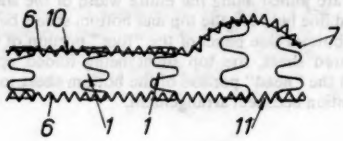
A cover material for the body-supporting portion of a chair, couch, or the like is formed with a number of internal ducts connected either to a source of pressurized air or to a source of vacuum. Apertures extend between the surface of the cover and the ducts for the intake and discharge of air therefrom to cool the body of a person sitting in the chair.

3,681,798

SPRING INTERIORS AND ARTICLES COMBINING SPRING INTERIORS

Leslie Thomas Docker, Solihull, Warwickshire, England, assignor to Slumberland Group Limited, Birmingham, England

Filed June 30, 1970, Ser. No. 51,311
Claims priority, application Great Britain, July 3, 1969, 33,519/69
Int. Cl. A47c 23/04, 25/00
U.S. Cl. 5—351 3 Claims



A spring interior has a main face, or an extension of a main face, which is non-planar and has varying contours determined at least in part by at least one stiff yet resilient former of wire, rod, strip or the like secured to the main face. Preferred formers have parallel limbs joined by an integral, transverse base. The limbs may be inserted into parallel helical wires of the spring interior if such are provided. The former may be bent before or after being secured to the spring interior. The spring interior may be heat-treated to relieve stresses after it is in its final shape.

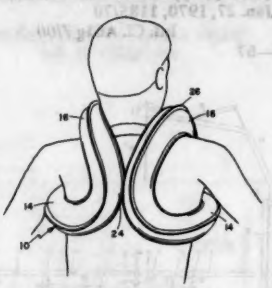
3,681,799

LIFE PRESERVER

Eric P. Smith, Coronado, Calif., assignor to Emergency Systems International, Santee, Calif.

Filed Feb. 8, 1971, Ser. No. 113,264
Int. Cl. B63c 9/12
U.S. Cl. 9—340 3 Claims

A life preserver which requires no straps or like fastening means and which has an inherent ability to clamp firmly around the upper torso, over the shoulders and under the arms without immobilizing the user who can still swim, and this life preserver incorporates reasonably resilient means to hold the head upright well above the water, the donning of the life preserver is accomplished by simply passing the arms through obvious armholes while permitting portions of the item to pass down over the head and this donning can be accomplished easily with the pre-filled or pre-inflated life preserver.

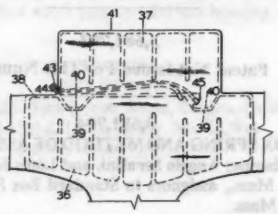


3,681,800

SWIMMING AIDS

Hermann Thoma, Four Winds, Middle Road, Morningside, Sandton, Transvaal, South Africa

Filed July 8, 1970, Ser. No. 53,131
Claims priority, application South Africa, July 18, 1969, 69/4825; July 28, 1969, 69/5382
Int. Cl. B63c 9/16
U.S. Cl. 9—335 9 Claims



The invention relates to inflatable swimming aids which when uninflated are worn under and hidden by swimming trunks. The aid comprises an upper buoyancy chamber which in use extends above the trunks and can lie against the body of the wearer and which when deflated is tucked into the trunks and lies there inconspicuously.

3,681,801

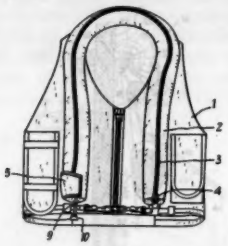
QUICK-RELEASE INFLATABLE ENVELOPE FOR LIFE JACKETS AND THE LIKE

Jean-Pierre Bel, 14 Allee des Chalets 92, Chatillon-sous-Bagneux, France

Filed June 4, 1970, Ser. No. 43,393
Int. Cl. B63c 9/16
U.S. Cl. 9—342 3 Claims

The envelope of the life jacket is provided with a zip fastener of which the two rows of connecting teeth are made of polymerized plastic material and are separated at the fastener end corresponding to the narrow end of the slide (i.e., at the end of the normal opening stroke of said slide) whereby the inflation of the inner article from the zone adjacent to said end will cause the gradual and automatic opening of the en-

velope which can subsequently be reclosed by effecting a complete stroke of the slide in both directions.



The separated parts of the fastener are protected by a flap closed by a tape assembly including a "hook" tape associated with a "loop" tape.

3,681,802

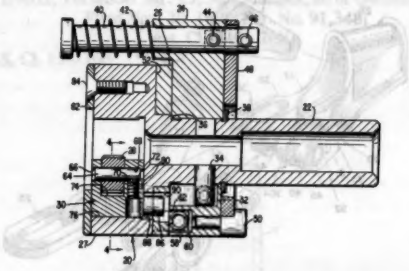
DIE HEAD

Donald E. Youtz, and Edwin M. Eigenbrode, both of Waynesboro, Pa., assignors to Teledyne, Inc., Los Angeles, Calif.

Filed Sept. 10, 1970, Ser. No. 70,988

Int. Cl. B23g *1/00, 5/10, 5/12*

U.S. Cl. 10—96 **3 Claims**



A die head for roll forming threads or other formations on a workpiece in which a plurality of dies are rotatably supported in die holders bodily received in recesses in the head for rotation therein to move the dies toward and away from the axis of the head.

3,681,803

MACHINE FOR CLOSING THE GROOVE AND SMOOTHING THE SOLE IN A SHOE

Giuseppe Pisaroni, Settimo Milanese, Italy

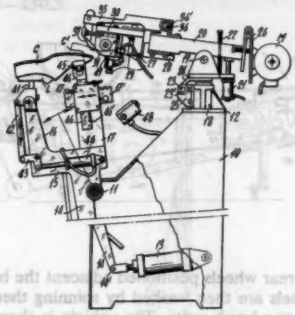
Filed Nov. 4, 1970, Ser. No. 86,774

Claims priority, application Italy, Nov. 11, 1969, 24284A/69; May 5, 1970, 24175 A/70

Int. Cl. A43d *95/04*

U.S. Cl. 12—29 **6 Claims**

A machine for closing the groove or scratch and smoothing a shoe sole following the glueing thereof on the shoe bottom, comprising: an adjustable support for the shoe having means for blocking it, while allowing a slight oscillation thereof on the longitudinal axis; a lever arm mounted as an extension of said support, provided with a horizontal pivot on which the assembly oscillates under pneumatic, oleodynamic or mechanical control; a rotating rocking tool comprising two symmetrical flared frusto-conical half rollers facing by the minor bases thereof and mating on the median plane, provided with helical ribs symmetrical to said median plane, characterized in that the ribs of said tool have the edge operating on the sole of a rounded profile, said edge being the first to operate on the sole surface in the direction of rotation, rotation which us imparted



to the tool so that the pressure of said two flared frusto-conical half rollers will be exerted on the sole from the shoe center line to the side margins, so that the stretching and compressive action thereof will provide for levelling and simultaneous possible closing of the seam concealing groove or scratch.

3,681,804

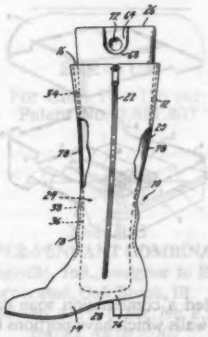
BOOT SUPPORT

Jane Caputo, Philadelphia, Pa., assignor to Was-Cap, Inc., Philadelphia, Pa.

Filed April 26, 1971, Ser. No. 137,201

Int. Cl. A43d *5/00*

U.S. Cl. 12—114.6 **11 Claims**



A shaped one-piece light weight plastic member for removable insertion into the flexible leg of a boot to support the same in an erect position and retain its shape with finger-engaging means at the upper exposed portion of the member to assist in inserting it into, removing it from and carrying the supported boot from one location to the other with a minimum of handling of the flexible boot leg itself.

3,681,805

APPARATUS FOR WASHING VEHICLE WHEELS

Richard J. Shelstad, Mequon, and James A. Ballo, Elm Grove, both of Wis., assignors to Edick Industries, Inc., Butler, Wis.

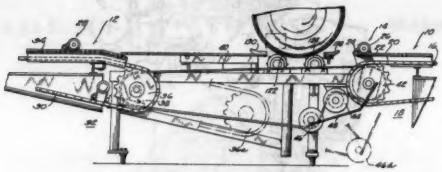
Filed March 16, 1970, Ser. No. 19,669

Int. Cl. B60s *3/04*

U.S. Cl. 15—21 R **11 Claims**

A first conveyor means engages one of the front wheels of a vehicle to convey it along a path of travel until it comes to rest at a wheel washing station with the front wheels positioned ad-

jacent a pair of brush units. The front wheels are then washed with the vehicle in a stationary position by spinning the wheels while in contact with the brush units. The first conveyor means then engages one of the rear wheels of the vehicle and conveys it along the path of travel until the vehicle comes to



rest with the rear wheels positioned adjacent the brush units. The rear wheels are then washed by spinning them while in contact with the brush units. The vehicle is then conveyed further along the path of travel away from the wheel washing station by a second conveyor means which engages one of the front wheels of the vehicle.

3,681,806

SOAP CASE HAVING SCRUBBING MEANS THEREON

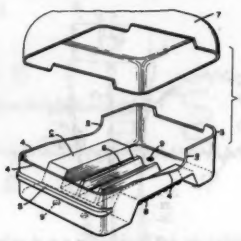
Gi Hwan Han, 48, Donam-dong, Sungbuk-ku, Seoul, South Korea

Filed July 14, 1970, Ser. No. 54,801

Claims priority, application South Korea, April 15, 1970, 557/1970

Int. Cl. A47k *5/03*

U.S. Cl. 15—105 **9 Claims**



There is provided a combination soap case and scrubber having three side-walls which have portions thereof which are cut out so as to facilitate withdrawal of the soap. The bottom plane of the case contains vent holes and indentations for supporting the soap so as to minimize the contact surface between the soap and the case itself. The underside surface of the bottom of the case is provided with a scrubbing surface, such as plastic blades, or sandpaper or the like.

3,681,807

CONCEALED-STOP SLOTTED-BAIL FOR FURNITURE COMPONENTS

Ted Ciepley, Evansville, Ind., assignor to Bliss and Laughlin Industries Incorporated, Oak Brook, Ill.

Filed Feb. 4, 1970, Ser. No. 8,555

Int. Cl. A47b *95/02*

U.S. Cl. 16—126 **9 Claims**

A keeper securable to a drawer front or the like, has a semi-cylindrical journal thereon for receiving a slotted or notched bail. The journal has a lug projecting radially therefrom at one end thereof engageable by a stop in a recess at the side of the

slot in the bail to prevent contact of the drawer front by the bail when released to hang freely.

3,681,808

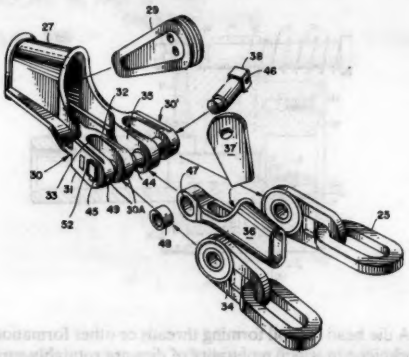
CROWFOOT-TYPE DRAG ROPE SOCKET ASSEMBLY

Frederick C. Hahn, Beaverton, and Edward B. Czyzewski, Aloha, both of Oreg., assignors to Esco Corporation, Portland, Oreg.

Filed March 30, 1971, Ser. No. 129,400

Int. Cl. F16g *11/04, 11/12*

U.S. Cl. 24—126 K **4 Claims**



A crowfoot socket for a drag line bucket having square-headed pins angularly related in shank end abutting relation to provide pivot connections for the drag chains and dump rope associated with the bucket.

3,681,809

Patent Not Issued For This Number

3,681,810

MOP HOLDER

Peter S. Vosbikian, Jr., 1315 West Cumberland Street, Philadelphia, Pa.

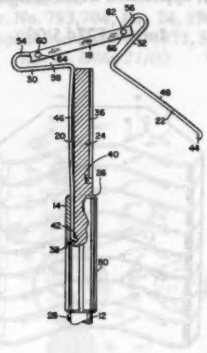
Filed Sept. 14, 1970, Ser. No. 71,740

Int. Cl. A47l *13/24*

U.S. Cl. 15—150 **1 Claim**

A mop holder including a slender, elongate cylindrical handle and a sleeve slidable upon the handle, a pair of spring arms of unequal length removably affixed at one end of the handle within longitudinal, diametrically opposed recesses, the said sleeve being slidable from a first position to a second position,

the sleeve securing and retaining both spring arms against the handle when in the first position and the said sleeve permitting



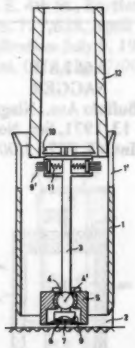
the shorter of said arms to swing clear from the handle for mop changing purposes when in its second position.

3,681,811

APPARATUS FOR CLEANING IRON MOULDS

Ernst Amelung, Steile Str. 11, 46 Dortmund-Aplerbeck; Edgar Belz, Grunbergerstr. 8, 6428 Lunen-Horstmar, and Egon Evertz, Vorlander Str. 23, 565 Solingen, all of Germany

Filed Nov. 20, 1970, Ser. No. 91,348
Int. Cl. A46b *3/00*
U.S. Cl. 15—165 **5 Claims**



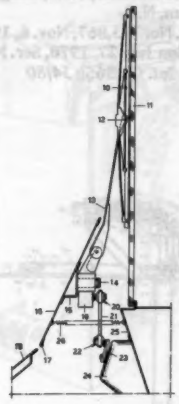
This invention relates to apparatus for cleaning iron moulds used in steel works. Such apparatus comprises a base plate, a guide tube mounted on the base to extend upwardly therefrom, a frusto-conical upwardly projecting lip portion at the upper end of said guide tube, a rod, means at or adjacent the lower end of said rod whereby the rod is movable to described a cone of revolution, resilient means which coact with said base plate and the lower end of said rod, to bias said rod to urge it into a vertical orientation, brush means flexibly secured proximate the upper end of said rod so as to extend laterally therefrom and a frusto-conical portion at the upper end of said rod. Said frusto-conical portion tapers inwardly in an upward direction.

3,681,812

WINDSCREEN WIPER FOR MOTOR VEHICLES

Ivo Colucci, Milan, Italy, assignor to Alfa Romeo S.p.A., Milan, Italy

Filed March 12, 1970, Ser. No. 19,001
Int. Cl. B60s *1/24*
U.S. Cl. 15—250.3 **4 Claims**



A windscreen wiper assembly for motor vehicles comprising a wiper rotatably pivoted on a screen, said screen being rotatably pivoted on the body of the motor vehicle; a driving motor for the windscreen wiper which motor is fixed on the vehicle body and connected to said windscreen wiper by way of an articulated crank mechanism.

ERRATUM

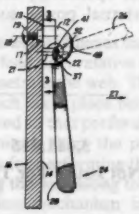
For Class 16—126 see:
Patent No. 3,681,807

3,681,813

KEEPER-PENDANT COMBINATION

Ted Ciepley, Evansville, Ind., assignor to Bliss and Laughlin Industries, Incorporated, Oak Brook, Ill.

Filed Feb. 4, 1970, Ser. No. 8,552
Int. Cl. A47b *95/02*
U.S. Cl. 16—126 **7 Claims**



A keeper securable to a drawer front or the like, with inwardly opening slot, receives the journal of a handle. Arcuate recesses in opposite sides of the keeper receive lugs in the handle adjacent the journal. Stops in the recesses are engaged by the lugs to prevent contact of the drawer front by the handle.

3,681,814

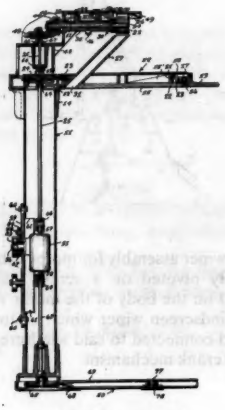
Patent Not Issued For This Number

3,681,815

TEXTILE SLIVER COILER

Josef K. Gunter; C. Walton Gunter; Roy E. Pattillo, and James W. Howe, Jr., all of Durham, N.C., assignors to Gunter & Cooke, Inc., Durham, N.C.

Continuation of Ser. No. 773,867, Nov. 6, 1968, abandoned.
This application July 27, 1970, Ser. No. 64,073
Int. Cl. B65h *54/80*
U.S. Cl. 19—159 R 5 Claims



A textile sliver coiler that includes a sliver can platform structure comprising a base plate, and a circular platform member that is rotated by a belt member engaging the peripheral edge thereof and that is carried concentrically on an annular series of adjacent ball members interposed between the base plate and the platform member whereby the can carrying surface of the platform member is disposed at a level very near to the adjacent floor surface to permit sliver cans to be readily placed thereon and removed therefrom, this can carrying surface having upstanding wall portions arranged to center and hold a sliver can thereon. Additionally, the coil drive assembly is composed of separable parts compactly housed substantially within the confines of the coiler column structure and easily removable therefrom for routine maintenance of the coiler, and includes a pivotally mounted transmission assembly for operatively connecting the coiler drive assembly to an external power source such as a carding machine.

3,681,816

Patent Not Issued For This Number

ERRATUM

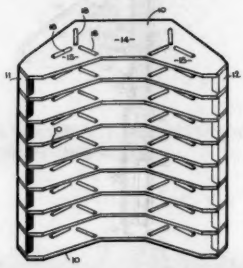
For Class 24—126 see:
Patent No. 3,681,808

3,681,817

SUPPORTING STRUCTURES FOR USE IN FIRING POTTERY

William John Lovatt, Stoke-on-Trent, England, assignor to Acme Marls Limited, Stafford, England

Filed March 13, 1970, Ser. No. 19,312
Claims priority, application Great Britain, March 22, 1969, 15,157/69
Int. Cl. F27d *5/00*
U.S. Cl. 25—153 1 Claim



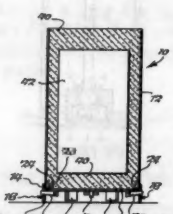
A supporting structure for plate-like articles of pottery for use during firing comprising a plurality of vertically spaced cranks of refractory material. The cranks are generally of V-shape in plan and afford a pair of arms having longitudinal center lines coinciding with the shorter sides of an imaginary isosceles triangular (or two adjacent sides of an imaginary regular hexagon). The cranks are spaced apart by spacer blocks which form pillars disposed respectively at the free ends of the arms and at the junction thereof at positions corresponding to the corners of the imaginary isosceles triangle or regular hexagon. The distance between the pillars is such that the plate-like article for which the support is intended can just be passed between them and placed on a respective arm. The use of the supporting structure enables the articles to be assembled into a close packed hexagonal array whereby kiln space during firing may be utilized most efficiently.

3,681,818

SAGGER

Louis Di Stefan, 8235 Buffalo Ave., Niagra Falls, N.Y.

Filed Jan. 13, 1971, Ser. No. 106,141
Int. Cl. F27d *5/00*
U.S. Cl. 25—153 7 Claims



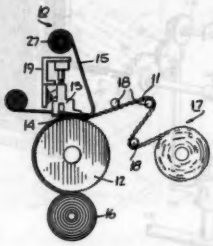
A sagger particularly for baking carbon or graphite bodies comprises a shell mounted on a supporting base and having a removable bottom or closure member secured in closed position by means of wedge members. The wedge members may be removed after the body is baked, thereby allowing the closure member to drop, thus facilitating removal of the sagger contents. The shell is provided with plow members extending inwardly thereof adapted to fragment and loosen the packing medium surrounding the body when the shell is removed from the sagger contents.

3,681,819

PROCESS FOR MECHANICALLY TREATING MATERIALS HAVING A MOVABLE FLEXIBLE RETARDER

Alexander L. Trifunovic, Wilmington, and Charles R. Kase, Jr., Newark, both of Del., assignors to Joseph Bancroft & Sons Co., Wilmington, Del.

Division of Ser. No. 793,704, Jan. 24, 1969, Pat. No. 3,597,814. This application April 19, 1971, Ser. No. 135,109
Int. Cl. D06c *21/00*
U.S. Cl. 26—18.6 6 Claims



The flexible retarder is of a higher coefficient of friction than the primary surface and is mounted to be moved relative to the driving roll to avoid excessive wear. The retarder can be an endless belt, jacketed roller or an elongated strip and can be moved continuously or intermittently to expose fresh surfaces to the material being compacted.

3,681,820

SEALED CASKET MADE OF PLASTIC FOR USE WITH A BURIAL SYSTEM

Donald A. Jalbert, 616 E. 4th St., Bartlesville, Okla.

Division of Ser. No. 717,628, April 1, 1968, Pat. No. 3,581,452. This application July 9, 1970, Ser. No. 61,020
Int. Cl. A61g *17/00*
U.S. Cl. 27—7 7 Claims

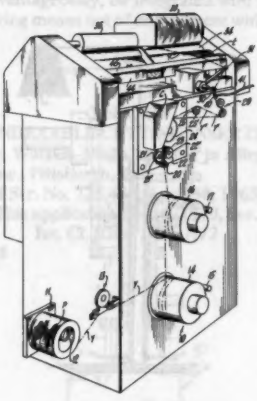
A system for burying a plurality of human remains in a normal cemetary grave site, including a burial vault having a plurality of vertically disposed chambers, and a casket receivable in said chambers. The casket is made completely from plastic and has a frusto-conical configuration, the casket body having an elongated opening therein for use in placing the remains in the casket, and to thereafter provide for viewing of the remains. Cover means is provided to close the opening, and is welded in place to provide a completely sealed casket.

3,681,821

METHOD AND APPARATUS FOR DEPHASING AND ENTANGLING CRIMP YARN

Thomas M. Buck, Curtis Point Dr., Mantolok, N.J.

Filed Jan. 19, 1970, Ser. No. 3,929
Int. Cl. D02q *1/20*
U.S. Cl. 28—1.3 5 Claims



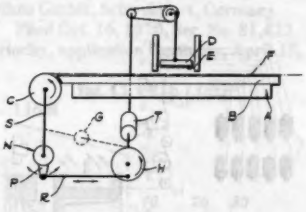
Multifilament crimped yarn is dephased while the yarn is on the run by separating some of the filaments thereof from the rest of the filaments, advancing both groups of filaments to a point at which the two groups are brought together to form again a single yarn, and between the points of separating and rejoining, guiding one of the groups of filaments over a path of greater length than the path of the other group of filaments.

3,681,822

MACHINE FOR NEEDLING FABRICS

Norman Thomas Sanders, Studley, England, assignor to Needle Industries Limited

Filed May 26, 1970, Ser. No. 40,484
Int. Cl. D04h *18/00*
U.S. Cl. 28—4 R 4 Claims

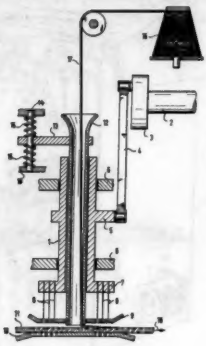


A method of needling a web of fibrous material in which the web is advanced along a feed path relative to an array of needles which repeatedly penetrate the web. The relative longitudinal feed movement which takes place between penetrations by the needle array is varied so that preferably each successive feed step differs in magnitude from the preceding one. One embodiment of apparatus for performing the method includes feed means for advancing the web along the feed path and incorporating a transmission mechanism including a dimensionally variable component, variation of the dimension of said component varying the magnitude of the feed step of the web between successive penetrations. A further embodiment of the apparatus includes a transmission mechanism incorporating a differential gear to convert a continuous uniform rotation into a continuous non-uniform rotation.

3,681,823
NEEDLING APPARATUS

Richard Dilo, Eberbach/Neckar, Germany, assignor to Dilo Oskar KG, Eberbach/Neckar, Germany

Filed March 1, 1971, Ser. No. 119,604
Claims priority, application Germany, March 28, 1970, P 20 14 970.6
Int. Cl. D04h 18/00
U.S. Cl. 28—4 R 3 Claims

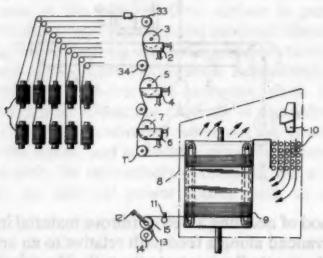


A guide sleeve for a roving or slubbing is mounted fixedly in a reciprocating needle support which, upon reciprocation, needles the roving fed through the guide sleeve to a non-woven fibrous web which moves transversely of the roving immediately adjacent one end of the guide sleeve.

3,681,824
PROCESS FOR WRAPPING IN WEAVING AND APPARATUS THEREOF

Takeuchi Yasuji, Osaka, Japan, assignor to Kabushiki Kaisha Ueno Kikai Seisakusho, Osaka, Japan

Continuation-in-part of Ser. No. 858,306, Sept. 16, 1969. This application Aug. 19, 1971, Ser. No. 172,975
Claims priority, application Japan, Aug. 13, 1969, 44/64348
Int. Cl. D02h 5/02
U.S. Cl. 28—33 2 Claims

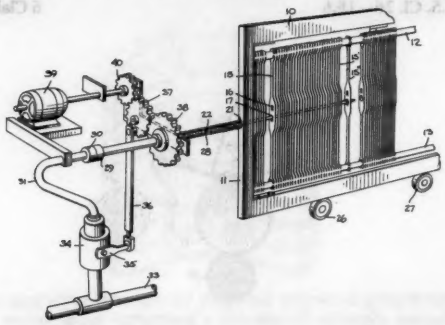


Warps drawn out of a suitable number of warp bobbins are simultaneously processed to obtain consecutively a unit group of dyed warps arranged for a subsequent weaving operation in accordance with a predetermined weaving plan. Said group of warps is wound in a predetermined color arrangement on a warp winding bobbin. Any number of said color arranged warp winding bobbins are skewered on a bar to make a skewered and wound bobbin. Any number of said skewered and wound bobbins are supported on a frame to obtain the total number of warps required for subsequent weaving operation.

3,681,825
MACHINE FOR THE AUTOMATIC DRAWING IN OF THE THREADS OF A WARP

Hugo Albert Meierhofer, Uster, Switzerland, assignor to Zellweger, Ltd., Uster, Switzerland

Filed May 11, 1970, Ser. No. 36,052
Int. Cl. D03j 1/14
U.S. Cl. 28—46 10 Claims

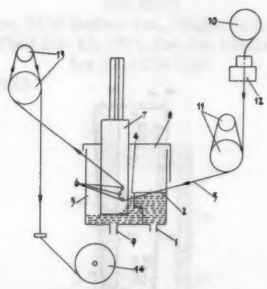


The healds are arranged to slide along a shaft so as to be pressed together during the drawing-in operation. Thereafter, the healds are individually selected for drawing-in of the warp. After selection, the healds are moved across the width of the frame. A blast of air is used to facilitate the movement of the healds across the frame.

3,681,826
DRAWING SYNTHETIC THERMOPLASTIC YARN

Walter Bergwerk, Harrogate, England, assignor to Imperial Chemical Industries Limited, London, England

Division of Ser. No. 768,960, Oct. 7, 1968, Pat. No. 3,557,273.
This application Oct. 5, 1970, Ser. No. 77,791
Int. Cl. D02j 1/22
U.S. Cl. 28—59.5 4 Claims



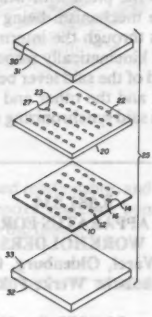
Filamentary yarn composed of thermoplastic synthetic, organic polymers is uniformly drawn at high speed by directing a stream of heated liquid into the path of the yarn to heat the latter to drawing temperature at less than drawing tension and immediately thereafter drawing the yarn by passing it over one or more snubbing pins arranged close to but out of contact with the liquid stream.

3,681,827
Patent Not Issued For This Number

3,681,828
METHOD OF MAKING ROTORS FOR VARIABLE CAPACITORS

Frank G. J. Mezey, 115 Monroe Drive, Centerport, N.Y.

Filed May 21, 1970, Ser. No. 39,440
Int. Cl. H01g 13/00
U.S. Cl. 29—25.42 7 Claims

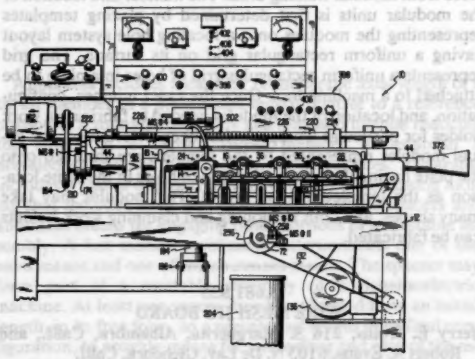


A method of making rotors for variable capacitors which employs a thin glass plate and a thicker backing glass plate onto each of which is positioned an array of metalized electrodes in identical patterns. The plates are juxtaposed to place the electrodes in registration and the assembly of plates is then fired to fuse them and form an integral monolithic glass body with electrodes of the thin plate embedded in the glass body. Holes are bored in the glass body through the electrodes and the electrodes are then electrically connected together by metalizing interiors of the holes. The rotor discs are then cut out of the glass body, each disc including one pair of registering electrodes. Conductive members are then added to complete the rotor assembly.

3,681,829
TOOL CHANGER EMPLOYING AUTOMATIC WORK INDEXING MECHANISM

John A. Cupler, II, 10 Cupler Drive, Cumberland, Md.

Division of Ser. No. 715,711, March 25, 1968, Pat. No. 3,478,419. This application Sept. 4, 1969, Ser. No. 871,135
Int. Cl. B23q 3/157
U.S. Cl. 29—26 A 4 Claims

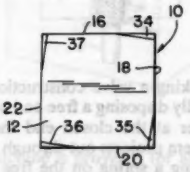


The disclosure introduces a new concept in machining; that of the non-captive tool. A non-captive tool is herein defined as one which may undergo bodily movement, transversely of its own axis, relative to both the tool bearing structure which supports the tool in working position and a tool support structure which supports the tool in a non-working position adjacent the bearing structure. The non-captive tool is unrestrained against the aforesaid bodily movement except during that time the tool is actually working and, while working, the restraint imposed is due to engagement with the tool driving means. Accordingly, removal of the tool driving means from engagement with the tool frees the same for bodily movement which movement may, advantageously, be integrated with the movement of the tool driving means out of engagement with the tool.

3,681,830
INDEXABLE CUTTING INSERTS

Hubert Dupuis, Warren, Mich., assignor to Allegheny Ludlum Industries, Inc., Pittsburgh, Pa.

Division of Ser. No. 725,445, April 30, 1968, Pat. No. 3,561,170. This application Nov. 6, 1970, Ser. No. 87,532
Int. Cl. B26d 1/00, 1/12
U.S. Cl. 29—95 8 Claims

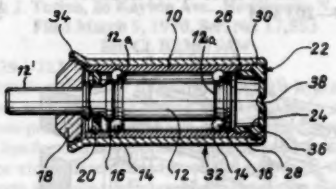


Indexable cutting inserts having a multiplicity of successively usable cutting edges, the inserts having pre-ground areas of circular cross-section formed by spin grinding directly in the rear of all of the cutting edges.

3,681,831
YARN ROLLER GUIDES

Joseph Steichele, Stuttgart, Germany, assignor to SKF Kugellagerfabriken GmbH, Schweinfurt, Germany

Filed Oct. 16, 1970, Ser. No. 81,422
Claims priority, application Germany, April 15, 1970, G 70 13 747.2
Int. Cl. B21b 13/02
U.S. Cl. 29—116 R 4 Claims



A yarn roller guide having a fixed bearing shaft. A bearing housing is rotatably mounted on the shaft. A sleeve having an outer surface adapted to engage the yarn is removably mounted on the housing and retained thereon by releasable cap means holding the sleeve to the housing.

3,681,832
METHOD OF MAKING A POPPET VALVE CONSTRUCTION

Louis M. Puster, Knoxille, Tenn., assignor to Robertshaw Controls Company, Richmond, Va.

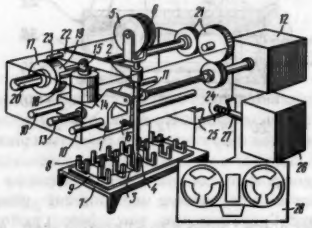
Division of Ser. No. 829,498, June 2, 1969, Pat. No. 3,558,098.
This application Feb. 19, 1970, Ser. No. 14,874
Int. Cl. B21d *53/00*; B21k *29/00*; B23p *15/26*
U.S. Cl. 29—157.1 R 8 Claims

A method of making a valve construction comprising the steps of telescopically disposing a free end of a valve stem in a cup-shaped member at the closed end thereof so that the remainder of the stem projects out through an opening in the closed end, disposing a spring on the free end of the stem, forming a recess in a valve poppet, disposing the valve poppet in the end of the cup-shaped member so that the spring urges the free end of the valve stem against the valve poppet while permitting a swivel action therebetween, and staking the side wall of the cup-shaped member between the closed and open ends thereof into the recess of the valve poppet to secure the valve construction together.

3,681,833
DEVICE FOR STITCHED-WIRING OF LONG-TIME MEMORY MEANS

Jury Ivanovich Kasatkin, Pushkinskaya ulitsa, 14, kv. 7; Alexandr Vasilievich Filimonov, prospekt Metallistov, 25, korpus 3, kv. 16; Nikolai Sergeevich Erlykov, ulitsa Fontanka, 165, kv. 6; Sergei Ivanovich Chikirda, Ivanovskaya ulitsa, 7, kv. 90; Vadim Konstantinovich Strashinsky, ulitsa B. Zelenina, 26a, kv. 24, all of Leningrad, and Vladimir Pinsokhovich Zeldin, ulitsa Pervomaiskaya, 73, kv. 43, Moscow, all of U.S.S.R.

Filed July 15, 1970, Ser. No. 55,035
Claims priority, application U.S.S.R., July 17, 1969, 1349195
Int. Cl. H01r *43/00*; H05k *13/04*
U.S. Cl. 29—203 MM 3 Claims

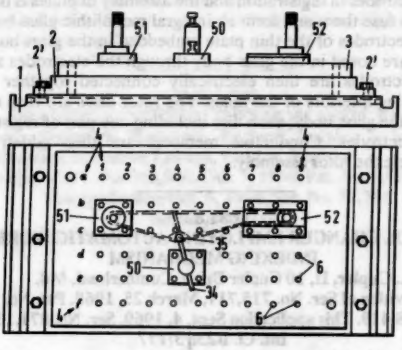


A device for stitched-wiring of long-time memory means, wherein a means for placing code wires relative to cores is associated with a control mechanism thereof and is deflected thereby depending on and in accordance with a pre-set program, the mechanism controlling the deflection of said code wire placing means comprising: a driven carriage adapted to move along guides longitudinally to a row of cores and movably mounting said means which through a lever is associated with a drive adapted to deflect said means in a direction transverse to a row of cores, and a mechanism adapted to synchronize the deflection of said code wire placing means relative to the pitch with which said cores are arranged in a row, the mechanism being associated with said drive and said means through the intermediary of the abovementioned lever and kinematically associated with a drive of said carriage; one end of the said lever being rigidly connected with the said means, and the other end thereof being operatively associated with said synchronizing mechanism.

3,681,834
METHOD AND APPARATUS FOR FABRICATING WORKHOLDERS

Heinz Seidenfaden, Varel, Oldenburg, Germany, assignor to Vereinigte Flugtechnische Werke-Fokker GmbH, Breman, Germany

Filed Jan. 26, 1970, Ser. No. 5,497
Claims priority, application Germany, Jan. 24, 1969, P 19 03 576.8
Int. Cl. B23p *19/00*
U.S. Cl. 29—200 J 11 Claims



A method and apparatus for fabricating a holder for a workpiece from modular holding units. The number and location of the modular units is first determined by placing templates representing the modules onto a locating hole system layout having a uniform rectangular grid on its surface. The grid represents a uniform rectangular grid of holes in a plate to be attached to a machine tool. Once the exact number, configuration, and location of the modules needed to fabricate a work holder for particular workpiece has been determined, the actual modules represented by the templets are fastened onto the plate having the rectangular grid of holes in the same location as the templets on the layout. The modules may take many shapes; and both tensioning and clamping work holders can be fabricated.

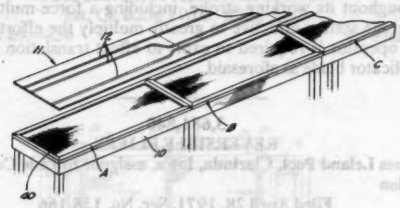
3,681,835
WIRE MESH JIG BOARD

Jerry E. Evans, 216 S. Marguerita, Alhambra, Calif., and Robert A. Evans, 6103 N. De Lay, Glendora, Calif.

Filed Oct. 12, 1970, Ser. No. 79,889
Int. Cl. H05k *13/04*, *3/32*; B73k *31/02*
U.S. Cl. 29—203 J 3 Claims

A wire mesh jig board for preparing electronic assemblies, which includes a generally rectangular steel frame, a pair of

rectangular wire mesh screens supported within the frame in spaced parallel relationship, a spacer between the screens for



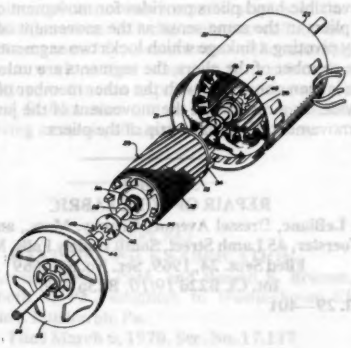
maintaining their spaced relationship, and including a quantity of low-temperature epoxy material bonding the peripheral edges of the screens to the frame.

3,681,836

DYNAMOELECTRIC MACHINE AND METHOD AND APPARATUS FOR USE IN MANUFACTURING SAME

Vincent V. Busian, Fort Wayne, Ind., assignor to General Electric Company

Filed May 25, 1970, Ser. No. 40,224
Int. Cl. H02k *15/00*
U.S. Cl. 29—205 D **9 Claims**



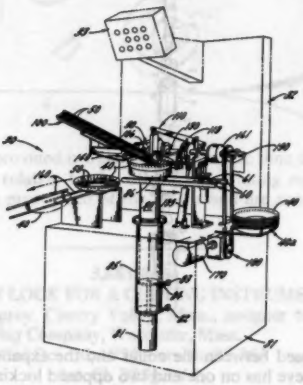
Apparatus includes means for reducing the axial length of a thrust member to a preselected length relative to a reference portion of a rotatable assembly and may also include reducing the length of a second thrust member to establish a preselected distance between two thrust surfaces. Apparatus includes a pair of opposed rams having spacer collapsing tooling that includes anvil means for collapsing the spacers and abutment means for engaging other portions of a rotatable assembly. A lost motion mechanism interconnects one of the anvil means and one of the abutment means. The spacers may form part of a rotatable assembly of a dynamoelectric machine. At least one spacer may be collapsed from an initial length, in its free form, to a preselected length in its final configuration, to provide means for controlling end play of the assembly and for establishing a desired alignment of the assembly with the stationary structure of the machine. Collapsing the spacer reduces an internal diameter of the spacer and rigidly secures the spacer to a shaft portion of the assembly.

3,681,837

AUTOMATIC ASSEMBLY SYSTEM EMPLOYING FIRST AND SECOND HAMMER MECHANISMS FOR INSERTION OF WORKPIECES

George H. Franklin, Beloit, Wis., assignor to Giddings & Lewis, Inc., Fond du Lac, Wis.

Filed June 14, 1971, Ser. No. 152,619
Int. Cl. B23q *7/10*
U.S. Cl. 29—211 D **14 Claims**



An assembly machine is provided for automatically inserting blade-like foil inserts in a torque converter turbine drum or similar article. The assembly mechanism includes automatic apparatus for accomplishing the requisite assembly motions, including moving a turbine drum which is placed upon a translatable rack to a preliminary position, moving the drum from the rack to a work position upon a supporting mandrel, stripping a foil insert from a feeding magazine, urging the stripped insert along guides for insertion into the drum, camming and hammering a first foil ear into a preliminarily inserted portion in the drum, thereby locating the foil in a preliminary position, urging the foil into its final assembled position in the drum with a simultaneous camming and hammering motion, angularly indexing the drum or housing to a successive position so as to receive the next blade-like foil insert, counting the number of angular indexing steps imparted to the drum, and moving the drum with its assembled blade-like foil inserts back to the rack and then out of the assembly mechanism when the requisite number of foils have been inserted.

3,681,838

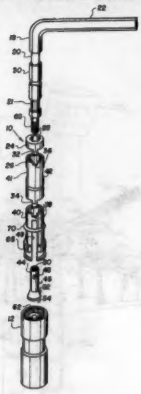
HYDRAULIC VALVE LIFTER TOOL

Dominick J. Tutino, 26 Kaywin Ave., Hawthorne, N.J.

Filed March 9, 1970, Ser. No. 17,553
Int. Cl. B23p *19/04*
U.S. Cl. 29—213 **7 Claims**

A hydraulic valve lifter tool, for removing a hydraulic valve lifter from an automobile engine block, having a cylindrical hollow two-prong expander head with a pair of semi-circular grasping lips formed at the prong edges for insertion within the inner-face circumferential edge of the hydraulic valve lifter and wherein is located an internal expander cam plunger having a tapered cam surface which is pulled against the inner edge of the grasping lips of said expander head by an elongated rod handle for expanding its prong edge grasping lips radially outwardly within the inner face circumferential groove of the hydraulic valve lifter. The rod handle threadedly engaged to the cam plunger and including a locking collar having a hexagonal inner bore slidably coupled with the outer hexagonal configuration of the rod handle and which includes

two opposed locking index keys longitudinally extending on each side of the rod for inseration within two of four key slots of the expander head. The rod includes a circular reduced diameter portion for rotation of the collar on the rod in aligning the index keys in the key slots. The tool includes an additional elongated hollow circular bore tube wrench sleeve that



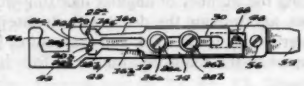
is interposed between the collar and the expander head and which sleeve has on one end two opposed locking index keys for insertion within two of the four expander head key slots and, on the other end, four key slots for receiving the index keys of the locking collar for extracting the hydraulic valve lifter from a fully enclosed automobile engine block.

3,681,839

HAND APPLICATOR FOR ASSEMBLING EXTERNAL RETAINING RINGS IN THEIR GROOVES BY RADIAL APPLICATION

Gustav Janecka, Jackson Heights, L.I., N.Y., assignor to Kohinoor Waldes Inc., Long Island City, N.Y.

Filed Sept. 23, 1970, Ser. No. 74,780
Int. Cl. B25b *27/20*
U.S. Cl. 29—229 **5 Claims**



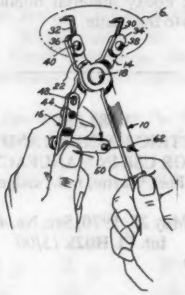
A hand applicator for assembling external retaining rings, specifically but not exclusively clip-type retaining rings of the structural form disclosed in copending Wurzel application Ser. No. 852,866, filed Aug. 25, 1969, now U.S. Pat. No. 3,595,123, dated July 27, 1971, in grooves provided therefor in shafts, spindles, etc. by the so-called radial-application procedure, comprising an elongated rigid bar or strap member having at one end thereof a hook formation opening through a side edge thereof as enables said member to be hooked to said shafts, spindles, etc.; an applicator blade mounted substantially flush against the under face of said hook member and for translatory movement toward and away from the hook formation of the latter, said applicator blade being provided at the end thereof disposed toward said hook formation with relatively short-length arcuate jaws constructed and arranged to grip a ring to be assembled along its outer periphery and when translated towards same to project the ring bodily towards and finally seat same in its groove; said hook formation being adapted meanwhile to rest against the opposite side portion of the shaft towards which the applicator blade is being translated and being thereby operative to engender a force in opposition to that required to translate said applicator blade as aforesaid; and hand-manipulable means operative between the relatively rearward or distal ends of both said hook member and applicator blade for translating the latter throughout its working stroke, including a force-multiplying leverage system effective to greatly multiply the effort which the operator is required to exert to effect translation of said applicator blade as aforesaid.

3,681,840

REVERSIBLE PLIERS

James Leland Pool, Clarinda, Iowa, assignor to Lisle Corporation

Filed April 28, 1971, Ser. No. 138,166
Int. Cl. B25b *7/12;* **B23p** *19/04*
U.S. Cl. 29—229 **4 Claims**



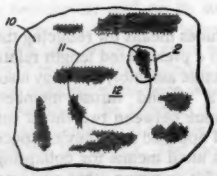
A reversible hand pliers provides for movement of the jaws of the pliers in the same sense as the movement of the hand grip. By pivoting a linkage which locks two segments comprising one member of the pliers, the segments are unlocked. The linkage is then connected with the other member of the pliers to provide for a reversal of the movement of the jaws relative to the movement of the hand grip of the pliers.

3,681,841

REPAIR OF WIRE FABRIC

Leo J. LeBlanc, Dressel Avenue, Granby, Mass., and Wallace C. Foerster, 45 Lamb Street, South Hadely Falls, Mass.

Filed Sept. 24, 1969, Ser. No. 860,669
Int. Cl. B22d *19/10;* **B23p** *7/00*
U.S. Cl. 29—401 **7 Claims**

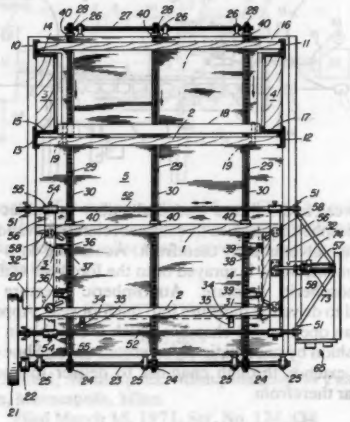


Wire fabric containing a break is repaired by removing therefrom a section encompassing the break, locking in its stead in non-overlapping relationship a patch coated with bonding material, and then bonding the patch to the fabric by effecting a bonding temperature about the periphery of the patch. A device is also described comprised of heating elements for the bonding operation and preferably magnetic locking means for maintaining the patch in non-overlapping place during the repair operation.

3,681,842
AUTOMATIC FASTENING MACHINE

Daniel Leo Blakeslee, Wilkes Barre, Pa., assignor to Stacor Visionaire Corporation, Scranton, Pa.

Filed Jan. 26, 1971, Ser. No. 109,769
Int. Cl. B23p *19/00*; B23q *7/10*
U.S. Cl. 29—430 13 Claims

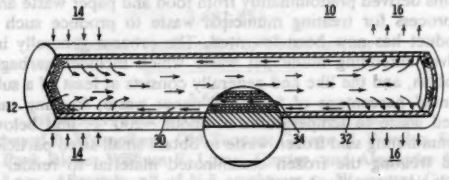


A machine for automatically assembling members into a frame and placing fasteners such as nails, staples, or the like in predetermined locations includes means to collect the frame members into an assembly, means to move the assembly to be fastened to a work station where it is positioned against retractable stops and means to position and drive a plurality of fasteners in a first location and to reposition and actuate the fastener driving means in at least one other location.

3,681,843
HEAT PIPE WICK FABRICATION

Frank G. Arcella, Bethel Park, and Russell E. Brumm, Pittsburgh, both of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed March 6, 1970, Ser. No. 17,117
Int. Cl. B23p *17/00*
U.S. Cl. 29—423 14 Claims

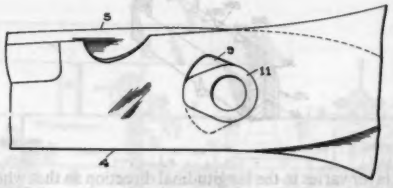


An economical heat pipe wick fabrication technique that yields wicks with fine pores at the liquid/vapor interface and unrestricted fluid flow beneath this interface. The resulting wick may be employed with either high or low thermal conductivity fluids.

3,681,844
SHEAR STOP

Edward D. Priest, Southboro, Mass., assignor to Parker Manufacturing Company, Worcester, Mass.

Filed Oct. 23, 1970, Ser. No. 83,444
Int. Cl. B26b *13/28*
U.S. Cl. 30—266 3 Claims



Means are provided in a shear mechanism to limit the travel of one blade relative to the other. The limiting means are located at the pivot point of the blades and are coaxial with the pivot pin.

3,681,845
HANDLE LOCK FOR A CUTTING INSTRUMENT

Francis S. Duprey, Cherry Valley, Mass., assignor to Parker Manufacturing Company, Worcester, Mass.

Filed Oct. 30, 1970, Ser. No. 85,363
Int. Cl. B25g *3/14*
U.S. Cl. 30—341 1 Claim

A cutting instrument comprising two blades having a common pivot point. The blades have a cutting portion and an actuating portion on opposite sides of the pivot point. A handle is provided for each blade. Means are provided on the actuating portion of each blade to lock the blade into a recess in the handle. The locking means have barbs which coact with the handle to overcome the tendency of the force applied when using the instrument to separate the blade portion from the handle.

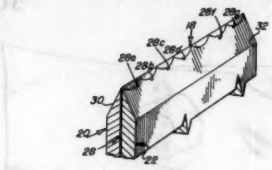
3,681,846
KNIFE BLADE CONSTRUCTION

Heinz Joseph Gerber, W. Hartford, Conn., assignor to Gerber Garment Technology, East Hartford, Conn.

Filed Feb. 9, 1970, Ser. No. 9,619
Int. Cl. B26b *9/02*
U.S. Cl. 30—355 4 Claims

The knife blade disclosed has outer layers of a relatively soft carrier material, such as steel or aluminum, and an inner layer

of relatively hard material such as tungsten carbide. The inner layer may be deposited on one or the other, or both outer layers, or may be bonded thereto as a separate member, or may be inserted in cavities defined by these outer layers of carrier material. When assembled, the thickness of the harder



inner layer varies in the longitudinal direction so that when the longitudinally extending cutting edge is used to cut in a reciprocating action, said edge will wear away in an uneven fashion producing a serrated edge which need not be sharpened as frequently as a conventional knife blade.

3,681,847

Patent Not Issued For This Number

3,681,848

Patent Not Issued For This Number

3,681,849

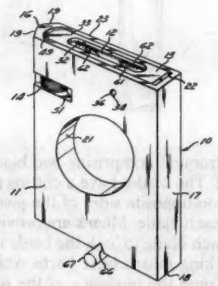
SQUARENESS GAUGE

Herbert J. Venables, III, Cleveland, Ohio, assignor to The Venables Machine and Tool Company, Cleveland, Ohio

Filed Dec. 12, 1969, Ser. No. 884,512

Int. Cl. G01c *9/28*

U.S. Cl. 33—385 **1 Claim**



A gauge, for measuring the parallelism or perpendicularity of precision machined surfaces, comprising a rectangular base having a pair of vertical surfaces and an adjoining horizontal surface, a graduated spirit level pivotably mounted on the base, and an adjustment member for adjusting the levelness of the spirit level relative to the base to calibrate the gauge to one of the surfaces to be measured and permit direct relative measurement of another surface including an opposed vertical surface. Also provided is a means permitting the gauge to be self aligned to a vertical surface while it is supported by an adjacent horizontal surface.

3,681,850

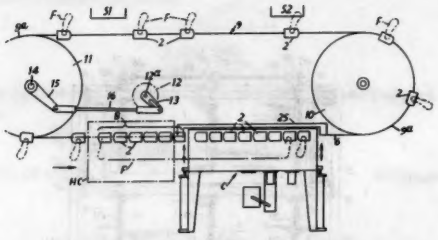
TREATMENT OF FOOTWEAR

Alfred Freedman, 94 Oringbury Road, Isham, England

Filed April 27, 1970, Ser. No. 32,278

Int. Cl. B01k *5/00*

U.S. Cl. 34—1 **12 Claims**



Footwear is dried in a closed chamber by subjecting it to sub-atmospheric pressure to cause accelerated evaporation of moisture, solvents etc., therefrom. According to a different embodiment, water is sprayed onto the footwear whilst it is at sub-atmospheric pressure. Atmospheric pressure is then restored to drive the moisture into the footwear. Apparatus includes an open-ended chamber which is closable in pressure-tight fashion by pneumatically-operated doors. Shoe conveyor system extends through chamber to deliver to and remove footwear therefrom.

3,681,851

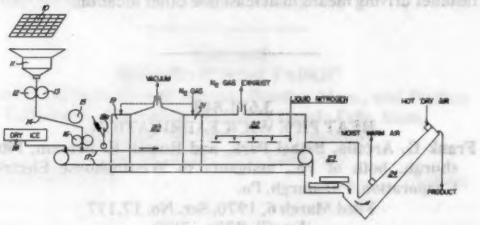
NOVEL PRODUCTION AND WASTE TREATMENT PROCESS FOR PRODUCING SAID PRODUCT

Patrick J. Fleming, 3336 Ivanhoe Drive, Pittsburgh, Pa.

Filed Nov. 9, 1970, Ser. No. 88,022

Int. Cl. F26b *5/06*

U.S. Cl. 34—5 **17 Claims**



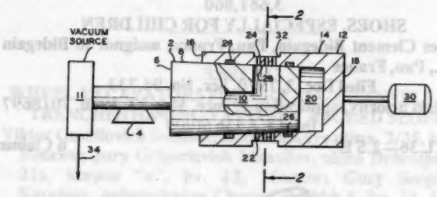
A novel product of substantially organic composition comprising a fine mixture of substantially biologically stable fragments derived predominantly from food and paper waste and a process for treating municipal waste to produce such a product has now been invented. The process generally involves shredding municipal waste which includes garbage, rubbish, and the like and generally consists at least of a substantial percentage of food and paper waste, freezing said sized waste to temperatures of about −200° F. and below, comminuting said frozen waste to obtain small-sized particles and treating the frozen comminuted material to render it biologically stable. A preferred manner of treating the material to render it biologically stable involves contacting the material with hot air to dry the material and to oxidize partially at least a portion of the material or bacteria present. The dried, biologically stable material produced by this process has unique structure and characteristics. The very dry product has a very low bulk density and has utility, among others, as a substitute for soil.

3,681,852

APPARATUS FOR REMOVING LIQUID FROM FIBERS

Richard D. Meyer, Greenville, S.C., and Zbigniew K. Walczak, Nashville, Tenn., assignors to Phillips Petroleum Company

Filed Oct. 5, 1970, Ser. No. 78,119
Int. Cl. F26b *11/02*
U.S. Cl. 34—122 8 Claims



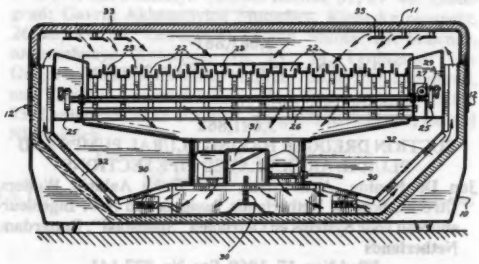
An apparatus for removing liquid from fibers by pulling air across the fibers with a vacuum means. The air moves through openings in a rotating roller that is in contact with the continuously moving fibers.

3,681,853

DRYER FOR SHEET MATERIAL

Norman C. Reid, Minneapolis, Minn., assignor to Pako Corporation, Minneapolis, Minn.

Filed March 15, 1971, Ser. No. 124,334
Int. Cl. F26b *13/00*
U.S. Cl. 34—151 5 Claims



This is a dryer for sheet material such as photographic prints and film which is particularly constructed to handle individual relatively large size prints and includes a walking beam transfer mechanism for transporting the sheets through the drying chamber with means for circulating warm air around and over the surfaces of the prints being dried in a manner to reduce the tendency of the sheet material to curl.

3,681,854

Patent Not Issued For This Number

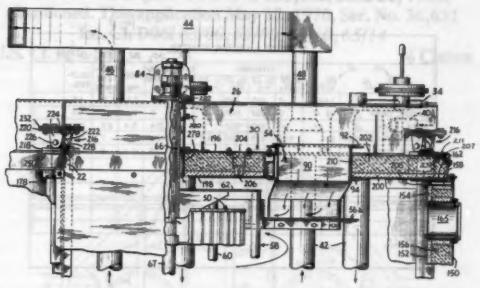
3,681,855

NONDUSTING, HIGH TEMPERATURE DRYER

Edward B. Weisselberg, Old Tappan; George M. Worden, Sr., Park Ridge; William F. Lamp, Closter, and Alexander M. Lane, Allendale, all of N.J., assignors to Wyssmont Company, Inc., Fort Lee, N.J.

Filed Feb. 5, 1970, Ser. No. 8,985
Int. Cl. F26b *17/30*
U.S. Cl. 34—173 12 Claims

Apparatus and method for low dust level drying of material in continuous drying apparatus of the type utilizing a plurality of vertically superimposed, rotating trays to convey the material through the dryer. Billowing of the material, and hence dust formation, is retarded by delivering the material to the dryer, and thereafter transferring it between vertically adjacent trays, through inclined chutes. Upon each revolution of the trays, wiper arms guide the material on each tray over the edge of the tray, while other wiper arms and leveler arms distribute the material discharged on to each tray from the next higher tray over the surface of the tray. All side and both end walls of the dryer housing are thermally insulated to maintain high drying temperatures, and the skeletal support structure, as well as the trays and end walls of the housing, are constructed to expand or contract laterally in response to temperature changes within the housing, thus allowing uninterrupted operation of the dryer over a wide range of temperatures, including highly elevated temperatures.

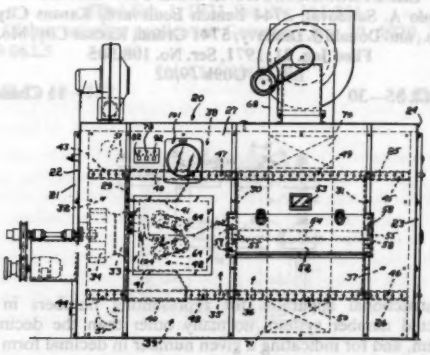


3,681,856

PRODUCT DRYER

Raymond D. La Pan, 6 River Street, Graniteville, Mass.

Filed March 5, 1971, Ser. No. 121,322
Int. Cl. F26b *21/06*
U.S. Cl. 34—191 19 Claims

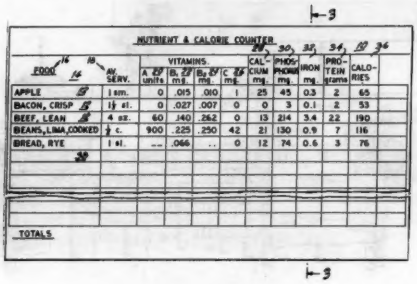


A product dryer is disclosed as a tray dryer and is provided with damper means that can be set to provide down draft, updraft, and cross draft treatments of the products substantially without interruption when changes in the draft direction are made. In one embodiment of the invention, the damper means are power operated and have controls mounted outside the dryer where they can be quickly and easily operated to shift from one type of product treatment to another. In another embodiment of the invention, the damper means are manually operated but the operating means are located on the same side of the dryer.

3,681,857
APPARATUS FOR MONITORING IMPORTANT PROPERTIES OF FOODS CONSUMED

Norma G. Yardley, 59 West 88th Street, New York, N.Y.

Filed Sept. 14, 1970, Ser. No. 71,753
Int. Cl. G09b *1/08*
U.S. Cl. 35—1 5 Claims



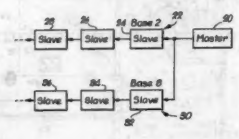
A method and apparatus for monitoring the important food properties consumed during a pre-determined period of time. A plurality of pre-printed strips, each representing a specific food item and its nutrient values is stored in a compartmentalized storage device and retrieved therefrom for attachment to a board. A plurality of rows and columns is formed when a number of strips are placed on the board, which columns contain the amount of each important food property consumed. Each column is tallied to provide the total amount of food properties consumed during a given period of time.

3,681,858
Patent Not Issued For This Number

3,681,859
ELECTROMECHANICAL BASE CONVERTER

Antonio A. Sandoval, 3744 Benton Boulevard, Kansas City, Mo., and Donald J. Dunlavy, 5741 Grand, Kansas City, Mo.

Filed Jan. 21, 1971, Ser. No. 108,505
Int. Cl. G09b *19/02*
U.S. Cl. 35—30 11 Claims

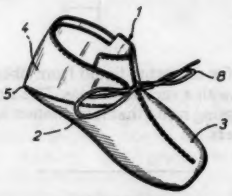


Instructional apparatus for representing numbers in a selected number system, normally other than the decimal system, and for indicating a given number in decimal form as well as the form into which it is converted by the apparatus. A master unit drives a series of identical slave unit modules, each of the slave units corresponding to one place of the number system. The master unit, under the control of a student or instructor, delivers a selected number of count pulses in serial fashion, such number being indicated by a decade counter on the master unit. The slave unit representing the units place counts the pulses and displays the number counted, and resets to zero after the units place fills. As the units place slave resets, it delivers a transfer command to a second slave unit representing the next higher order place. Successive transfer commands are counted and displayed by the second slave unit, which also resets after its place fills and delivers a transfer command to a third slave unit which operates in the same manner. As many slave units may be employed as dictated by the capacity desired. In each slave unit the counting function is executed by a stepper relay, and a base selector switch is provided so that the unit may be set to any one of several number systems, such as those of any base from 2 through 16.

3,681,860
SHOES, ESPECIALLY FOR CHILDREN

Georges Clement Bidegain, Pau, France, assignor to Bidegain S.A., Pau, France

Filed Dec. 3, 1970, Ser. No. 94,733
Claims priority, application France, May 22, 1970, 7018697
Int. Cl. A43b *00/00*
U.S. Cl. 36—2.5 E 6 Claims



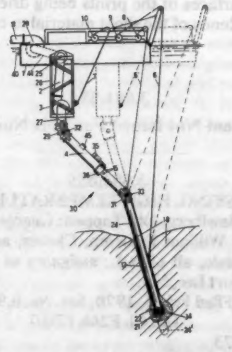
A shoe of the opening type, especially for children, comprises a first sole and a top composed of two parts made in a single piece, namely an upper and a heel-piece, the latter being constituted by two separate portions independent of each other: a front portion adjacent to the upper and a rear portion opening at the entry of the shoe, fixed to the base of a stiffening formed by the extension of said first sole.

3,681,861
Patent Not Issued For This Number

3,681,862
SUCTION DREDGER HAVING PLURAL PUMPS AND PLURAL ARTICULATED PIPE SECTIONS

Jan De Koning, Amsterdam, and Tjako Aaldrik Wolters, Utrecht, both of Netherlands, assignors to N.V. Ingenieursbureau voor Systems en Octrooien "Spanstaal", Rotterdam, Netherlands

Filed Nov. 17, 1969, Ser. No. 877,141
Claims priority, application Netherlands, Nov. 20, 1968, 6816590
Int. Cl. E02f *3/88*
U.S. Cl. 37—58 4 Claims



Suction dredger for sucking up a particulate material such as sand. A suction pipe is inserted into a body of sand below

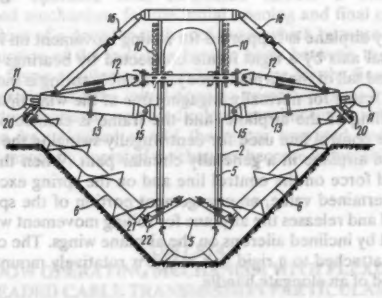
the bottom of a body of water to withdraw water-sand suspension having a desired concentration of sand in such suspension. At the lower end of the pipe, the sand is drawn in at very high concentration and at some level above this point water is separately introduced so that a desired concentration is obtained. The suction pipe consists of at least two pipe parts swingably connected to each other. The maximum suction output of the submerged pump is obtained by swinging the frame supporting the pump into a vertical position.

3,681,863

WHEEL EXCAVATORS FOR DIGGING CHANNELS AND TRENCHES HAVING VARIABLY ANGLED SLOPES

Viktor Gavrilovich Solntsev, Kerchenskaya ulitsa, 2/35, kv. 82, Moscow; Jury Grigorievich Manuilov, ulitsa Dobroljubova, 21a, korpus "a", kv. 12, Moscow; Gury Sergeevich Karataev, naberezhnaya Chernoi Rechki, 6, kv. 31, Leningrad; Leonid Ermolaevich Podborsky, Moskovsky prospekt, 205, kv. 64, Leningrad; Pavel Mikhailovich Mikhailov, ulitsa M. Govorova, 10, kv. 78, Leningrad; Alexandr Zakharovich Tsapsky, Novo-Izmailovsky prospekt, 57, kv. 70, Leningrad; Vladimir Gennadievich Milov, Izmailovsky prospekt, 7, kv. 64, Leningrad; Evert Alexandrovich Saikonen, Divenskaya ulitsa, 14, kv. 9, Leningrad; Vadim Georgievich Gubanov, ulitsa Petra Lavrova, 44, kv. 6, Leningrad; Jury Fedorovich Olkhovsky, Pryamoi pereulok, 6, kv. 3, Pushkin Leningradskoi oblasti; Grigory Borisovich Naret, Malo-Detskoselsky prospekt, 36, kv. 30, Leningrad; Zalman Eremeevich Garbuzov, Michurinskaya ulitsa, 13, kv. 20, Leningrad; Viktor Nikolaevich Balaklo, Voenny gorodok, 134, kv. 1, Minsk; Evgeny Pavlovich Griffin, Izhorskaya ulitsa, 13, kv. 44, Leningrad; Alexandr Fedorovich Smirnov, naberezhnaya Chernoi Rechki, 31, kv. 46, Leningrad; Gavrill Akhmetovich Mutushev, Kirovsky prospekt, 26–28, kv. 87, Leningrad; Leonid Nikolaevich Smirnov, naberezhnaya Kutuzova, 18, kv. 24, Leningrad; Lev Grigorievich Livshits, ulitsa Marata, 70b, kv. 70, Leningrad, and Vladimir Ivanovich Lamin, ulitsa Przhevalskogo, 18, kv. 75, Leningrad, all of U.S.S.R., assignors to Smirnov, Leonid Nikolaevich

Filed July 14, 1970, Ser. No. 54,735
Int. Cl. E02f *5/04, 5/08*
U.S. Cl. 37—97 4 Claims



A wheel excavator for digging channels featuring different angles of slope and having bottoms of a different width of simple design comprising inclined screw conveyers for making slopes of the channel. Each of the screw conveyers bears with its lower portion against a slider arranged in linear guides facilitating the screw conveyer to move relative to a rotor, and the upper portion of each screw conveyer, by means of a variable-length brace rod, being connected to the frame. At the lower end of the screw conveyer, or on the buckets of the rotor, cutters are mounted for cutting the ground between the rotor and the screw conveyers.

3,681,864

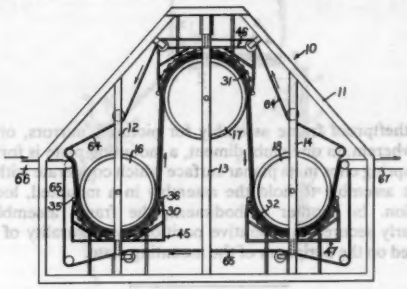
Patent Not Issued For This Number

3,681,865

CHEST FOR FLATWORK IRONER

Jerry N. McMillan, P.O. Box 167, Colville, Wash.

Continuation-in-part of Ser. No. 835,032, June 20, 1969, abandoned. This application May 12, 1970, Ser. No. 36,631
Int. Cl. D06f *63/00, 65/00, 65/10, 65/14*
U.S. Cl. 38—56 6 Claims



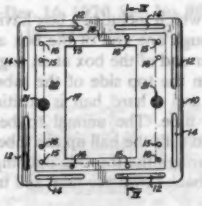
A flatwork ironer is described having flexible heated single-layer chests surrounding padded rolls. A hydraulic cylinder and lever system applies pressure on the ends of the flexible chests to wrap the chests around the rolls to apply a uniform ironing pressure against the rolls over the entire face of the chests. Each flexible single-layer chest is heated through a plurality of parallel steam tubes affixed to the back of the chest at spaced intervals.

3,681,866

MOUNTS FOR SLIDE TRANSPARENCIES

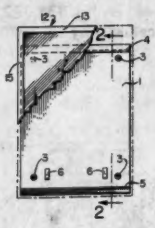
Johannes Loersch, Krefelder Strasbe 40, 4153 Huls, Germany

Filed Feb. 1, 1971, Ser. No. 111,271
Claims priority, application Germany, Jan. 30, 1970, P 70 03 062.5
Int. Cl. G09f *1/12*
U.S. Cl. 40—152 4 Claims



A photographic slide film transparency mounting which consists of two mount halves for receiving the film, the mount halves being connectable by a plurality of protrusions and indentations in each of the mount halves and each having a recessed portion surrounding the image opening for receiving the film strip, the mount half in which the film is first affixed having applied thereto two adhesive points, the adhesive being of a type which does not harden completely such as a copolymer acrylester known also as copolymers acrylate, such adhesive points being placed longitudinally relative to the film strip to provide a capacity for the film to expand under the influence of heat from a slide projector and avoid warping under such circumstances.

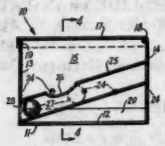
3,681,867
THEFTPROOF FRAME ASSEMBLY
Thomas J. Bilodeau, 5 Water Street, South River, N.J.
Filed Jan. 8, 1970, Ser. No. 1,456
Int. Cl. G09f 1/12
U.S. Cl. 40—152.1 5 Claims



A theftproof frame assembly for pictures, mirrors, or the like wherein, in one embodiment, a mounting plate is formed with spring clips in its planar surface which cooperate with the frame assembly to hold the assembly in a mounted, locked position. In another embodiment, the frame assembly is similarly secured in operative position by a plurality of tabs formed on the periphery of the mounting plate.

3,681,868
Patent Not Issued For This Number

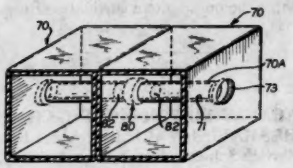
3,681,869
ANIMAL TRAP
Fred Vester Barker, Rhodell, W. Va.
Filed Aug. 19, 1971, Ser. No. 172,972
Int. Cl. A01m 23/08
U.S. Cl. 43—66 5 Claims



An animal trap which includes a box having a cover with a tube opening through one end of the box and extending upwardly to the other end of the box at an angle to the horizontal. An opening on the top side of the tube intermediate its ends is provided and a hard ball is positioned in the tube nearly filling the tube. The animal to be trapped presses against the ball and rolls the ball up the tube until he can pass out of the tube through the top side opening therein whereupon the ball rolls back down the tube and traps the animal in the box.

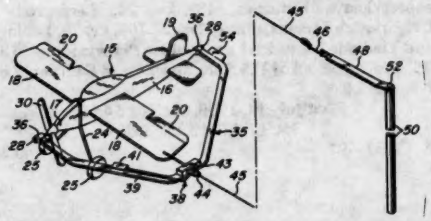
3,681,870
CONSTRUCTION TOY AND A BLOCK CONSTRUCTION THEREFOR
Benjamin Alpert, New Rochelle, N.Y., assignor to Childcraft Education Corp., New York, N.Y.
Filed Jan. 27, 1971, Ser. No. 110,037
Int. Cl. A63h 33/10
U.S. Cl. 46—26 17 Claims

This disclosure is directed to a construction toy made up of a plurality of geometric forms or blocks, each form or block having an integrally formed outer circumscribing wall to define a hollow structure. One or more hollow struts extend inwardly of each block or hollow structure between opposed wall portions of the circumscribing integral outer wall to reinforce the hollow structure. The hollow struts are also integrally formed to the outer wall with the opposed ends of the



respective struts defining an opening in the adjacent outer wall portions of the hollow structure. A coupler complementing the openings is provided for detachably securing two or more blocks together in side by side relationship.

3,681,871
TOY AIRCRAFT DEVICE
Joseph D. Fallo, 364 North Longview St., Dayton, Ohio
Filed Jan. 28, 1971, Ser. No. 110,410
Int. Cl. A63h 27/04
U.S. Cl. 46—77 8 Claims

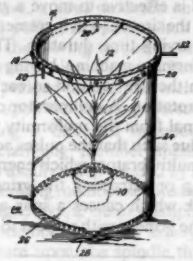


A toy airplane is supported for rolling movement on its longitudinal axis by a rigid frame connected by bearings to the nose and tail of the airplane body. A flexible spring is mounted on the frame for normally engaging one of the wing tips to resist rolling of the airplane, and the frame is connected to a flexible control line used for centrifugally swinging the frame and the airplane in a generally circular path. When the centrifugal force on the control line and on the spring exceeds a predetermined value, an engagement portion of the spring is moved and releases the airplane for rolling movement which is caused by inclined ailerons on the airplane wings. The control line is attached to a rigid link member rotatively mounted on one end of an elongate handle.

3,681,872
PLANT SHOWER CURTAIN ASSEMBLY
James F. Leitch, N. 1005 Park Towne Place, 2200 Parkway, Philadelphia, Pa.
Filed Feb. 26, 1970, Ser. No. 14,434
Int. Cl. B05b 1/28
U.S. Cl. 47—1 2 Claims

An assembly for use in removing dirt, film, refuse, and other

foreign matter from the leaves of plants which includes a curtain impervious to liquid, which curtain has an adjustable lower end portion and which is fastened to a frame.

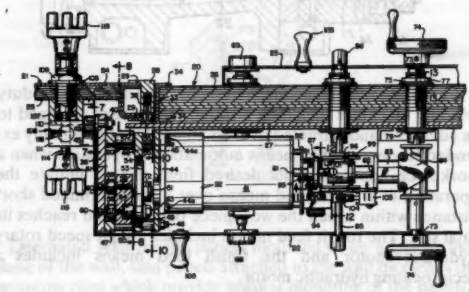


3,681,873

AUTOMATIC DOOR OPERATING MECHANISM FOR RADIATION PROOF ENCLOSURES

Carl Arthur Hansen, Bethel, Conn., assignor to Ray Proof Corporation, Norwalk, Conn.

Filed Dec. 24, 1969, Ser. No. 888,091
Int. Cl. E05f *15/12*
U.S. Cl. 49—139 16 Claims



Motor operated and, connected thereto a manually operated mechanism, for the initial opening and final closing operations of a door for such enclosures which because of the construction of the radiation barrier joints between the door and its frame require considerable pressure for the final closing operation and the initial opening operation. A second independent manually operated release mechanism enables the door to be unlocked should the motor operated and connected manually operated mechanism become inoperable.

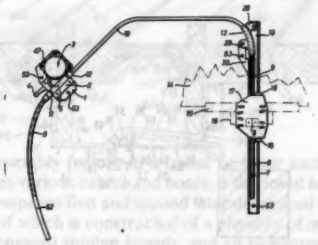
3,681,874

WINDOW OPERATING MECHANISM WITH FLEXIBLE THREADED CABLE TRANSMISSION PARTICULARLY FOR MOTOR VEHICLES

Hans Golde, Frankfurt, and Friedrich Herrmann, Dornigheim, both of Germany, assignors to Firma H.T. Golde GmbH, Frankfurt Main, Germany

Filed June 18, 1970, Ser. No. 47,548
Claims priority, application Germany, June 20, 1969, P 19 31 472.8
Int. Cl. F05f *11/40*
U.S. Cl. 49—352 13 Claims

An operating mechanism for raising and lowering windows, particularly automobile windows which move upwardly and downwardly in a guide track wherein the movement is controlled by the displacement of a threaded flexible cable which is guided from the rotating mechanism, which may be operated by a hand crank or a motor, to the connecting part for the window pane which is guided in a track. The driving mechanism for the threaded flexible cable includes a housing mounting a driving pinion which engages the cable and which also rotates a spring pulley which carries a spring which is wound during the opening of the window and which is unwound to aid in the driving force during the closing of the window. The construction includes a housing having two interengageable parts which together define an enclosing tube for receiving and holding a rigid plastic tube in which the cable is movable. The rigid tube is held in a secure position within the housing tubular formation in a manner which prevents axial displacement as well as rotation thereof by a



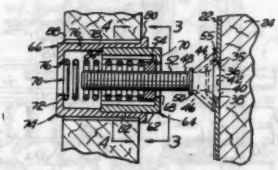
formation of plastic sleeves at each end of the housing tubular formation which are formed directly over the rigid plastic tube carrying the threaded cable and which includes projections which engage within recesses of the housing and prevent rotation or axial displacement of the plastic tube. The tube and the plastic sleeves are preferably made of a material such as copolymerized polyacetals and are formed such as by spraying directly over a rigid tube formation for the threaded cable which has been provided with knurlings or grooves on its exterior surface for facilitating interengagement of the sleeve with the rigid tube. The rigid tube containing the threaded cable is provided with a notch or cut-away portion at the location on the interior of said housing to facilitate meshing engagement of a driving pinion within the housing with the threaded cable contained within the tube.

3,681,875

ADJUSTABLE RESILIENT SASH GUIDE STRUCTURE

Donald M. Trout, 15750 Meyers Road, Detroit, Mich.

Filed Dec. 16, 1970, Ser. No. 98,728
Int. Cl. E05d *13/08*
U.S. Cl. 49—418 5 Claims



An elongated sash guide with longitudinally spaced countersunk holes has adjusting screws rotatably mounted and retained in these holes. The threaded shank of each screw is threaded into a resilient sash guide support through a nut held against rotation in a cup-shaped inner casing component which is tightly telescoped into a cup-shaped outer casing component with an interference fit so as to form an inseparable composite casing. The nut in turn bears against the outer end of a helical compression spring, the inner end of which

bears against the bottom wall of the outer casing component serving as a spring abutment. In use, rotation of the screw, as by a screwdriver, adjusts the position of the sash guide relatively to the composite casing and consequently relatively to the window frame side rail in which the casing is mounted, yet resiliently supports the sash guide for limited inward or outward motion against the window sash.

3,681,876

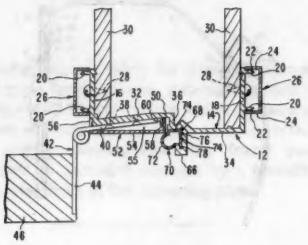
DOOR FRAME CONSTRUCTION

Robert L. Linder, 225 Clyde Dr., Walnut Creek, Calif., and Luther E. Marshall, 21 View Ridge Rd., Novato, Calif.

Filed July 27, 1970, Ser. No. 58,330

Int. Cl. E06b *1/04*

U.S. Cl. 49—504 **6 Claims**



An improved frame member for a door frame assembly wherein the frame member has a web portion to which one or more hinge butts can be secured, and a cover member releasably mounted on the frame member in a position to cover the web portion and the hinge butts secured thereto. The frame member can be provided with a striker plate to present a space sufficient in depth to receive a latch bolt of a door having a dead locking feature. The frame member can be used at either side or at the top of a door opening.

3,681,877

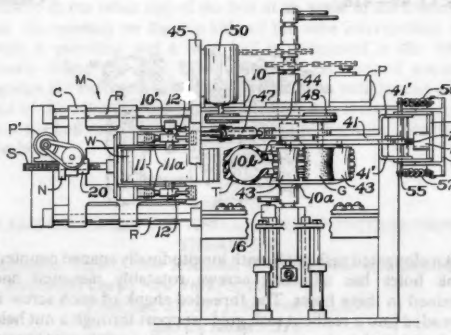
APPARATUS FOR CORRECTING NON-UNIFORMITY IN A ROTATING TIRE

Harmon G. Shively, Tallmadge, and Clifford A. Landsness, Akron, both of Ohio, assignors to The B. F. Goodrich Company, New York, N.Y.

Filed Aug. 12, 1969, Ser. No. 849,340

Int. Cl. B24b *5/00*

U.S. Cl. 51—106 R **9 Claims**



The method and apparatus for reducing the radial force variation of a rotating tire by grinding from the tread a portion thereof as determined by the radial motion of a floating load wheel which provides an electrical signal proportional to the movement of the load wheel axis. The electrical signal is employed in a circuit such that when a reference voltage is exceeded, the signal is effective to move a grinder to and away from contact with the tire tread in increments of constant radial depth but of varying time duration. The apparatus comprises a tire uniformity machine having a pulse generator synchronized with the tire rotation so each pulse indicates a unit angle of tire rotation. A comparator conducts the pulses only when the signal from the uniformity machine exceeds a predetermined value such that the pulses activate alternately a pair of one-shot multivibrators which energize actuating solenoids for applying or retracting the grinder. The solenoids move a bell crank which causes a snap-action toggle to advance or retract the grinder with respect to the tire tread.

3,681,878

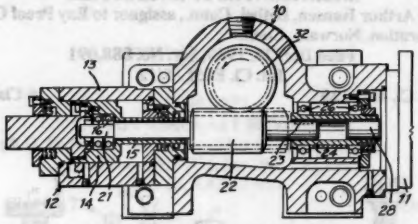
DEEP FEED MECHANISM

Oiva E. Hill, Holden, Mass., assignor to Norton Company, Worcester, Mass.

Filed Sept. 21, 1970, Ser. No. 74,053

Int. Cl. B24b *49/08*

U.S. Cl. 51—165.8 **2 Claims**



A grinding wheel feed mechanism for high speed heavy duty grinding machines including a rough feed means arranged to be advanced and retracted over an adjustable substantially extended feeding stroke, means automatically operative when a workpiece approaches its desired final size to initiate the operation of a finish feed means over a predetermined short distance within which the workpiece being ground reaches its final size. The rough feed means includes a high speed rotary hydraulic motor and the finish feed means includes a reciprocating hydraulic motor.

3,681,879

HEAD STOCK DEVICE FOR SELECTIVE USE BETWEEN THE DEAD CENTER DRIVE AND THE LIVE CENTER DRIVE

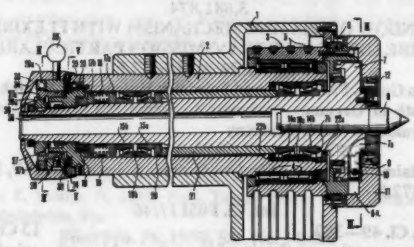
Akiyoshi Kobayashi, Kariya, Japan, assignor to Toyoda Koki Kabushiki Kaisha, Aichi-ken, Japan

Filed March 1, 1971, Ser. No. 119,497

Claims priority, application Japan, March 10, 1970, 45/22558

Int. Cl. B24b *41/04*

U.S. Cl. 51—237 R **3 Claims**



In a head stock device for selective use between the dead center drive and the live center drive there are provided a

sleeve secured to the head stock, a spindle journalled by the spindle through bearing means, a driven pulley rotatably mounted on the sleeve, a pawl mounted on the spindle to be engageable with the pulley, the pawl, when engaged with the pulley, transmitting the driving torque from the pulley to the spindle, a preload mechanism disposed between the spindle and the sleeve, the preload mechanims including a spring for applying a preload upon the bearing means, and a clamping mechanism including a threaded member secured to the sleeve, an outer clamping member mating the threaded member and moved axially when rotated by an operating handle, and an inner clamping member secured to the spindle and disposed to be engaged by the outer clamping member when the outer clamping member is moved axially in one direction to apply axial pressure upon the spindle thus increasing the preload on the bearing means. The outer and inner clamping members are arranged such that they are disengaged from each other by the rotation of the spindle.

3,681,880

Patent Not Issued For This Number

3,681,881

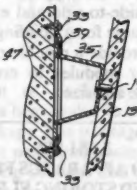
WALL DECORATED WITH PANELS

Donald H. Baran, 23425 Elesondra Drive, Valencia, Calif.

Filed June 18, 1970, Ser. No. 47,482

Int. Cl. E04b *1/40*

U.S. Cl. 52—29 **9 Claims**



Decorated wall having panels mounted at an angle to the plane of the wall, said panels attached to the wall by means of mounting clips which provide angular mounting of the panels, and methods for decorated walls with panels and said panel mounting clip.

3,681,882

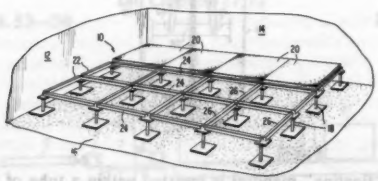
RAISED FLOOR PANEL AND ASSEMBLY

James H. Bettinger, Elkridge, Md., assignor to United Fabricating Company, Inc., Elkridge, Md.

Filed March 30, 1970, Ser. No. 23,531

Int. Cl. E04b *5/43*

U.S. Cl. 52—126 **6 Claims**



Disclosed is a raised floor panel and panel assembly for computer and similar installations. The panels are supported above a subfloor on pedestals and are easily installed and removed for later access to the space beneath the floor. Each panel comprises a core with or without strengthening metal sheets about which is wrapped a flexible and at least partially resilient floor covering, such as carpet or flexible tile material. The floor covering extends over the edges and for a short distance beneath each panel.

3,681,883

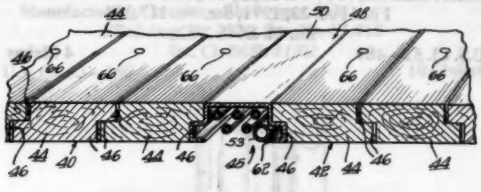
TRAILER AND CHANNELED FLOOR ASSEMBLY THEREWITH

Donald J. Ehrlich, P.O. Box 446, Monon, Ind.

Filed Sept. 28, 1970, Ser. No. 76,156

Int. Cl. E04b *5/48*

U.S. Cl. 52—220 **8 Claims**



A floor assembly for use in a trailer or other such vehicle, which utilizes various cables and hoses, is disclosed herein and generally comprises first and second laterally spaced floor sections, each of which is constructed of a plurality of interfitting standard elongated shiplap boards, and an elongated housing formed to interfit between and to the floor sections for defining a channel which is adapted to receive the aforementioned cables.

3,681,884

Patent Not Issued For This Number

3,681,885

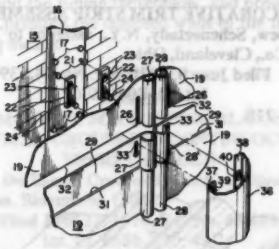
WALL COVER ASSEMBLIES

Franklin Goggins, P.O. Box 35 Fleetwood Station, Mount Vernon, N.Y.

Filed June 22, 1970, Ser. No. 48,024

Int. Cl. E04b *2/88*

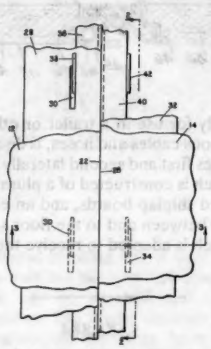
U.S. Cl. 52—288 **7 Claims**



By this invention, a wall cover assembly is provided for finishing off and enclosing an old building wall structure, framework, bridgework or any other construction where a full closed wall is needed. This wall assembly is formed to accommodate for expanison and contraction of the wall itself on a change of temperature and to permit the working under expansion and contraction of the wall assembly and relative to the structure upon which the assembly is mounted. The assembly of the wall cover pieces is made upon the wall or framework by means of vertically extending supports readily and easily secured to the already established wall structure or framework and to these vertical supports, the wall assembly is attached either through pendulum-like attaching members or

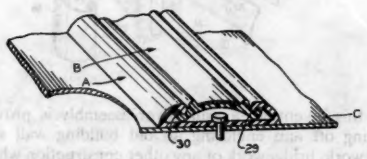
by transversely extending enlargements formed in the upper ends of vertical mounting slots. Headed mounting bolts are provided upon the vertical supports and the wall parts are assembled by their slots over these headed bolts and rolled resilient joints between the cover pieces are covered by vertically-extending rolled joint cover strips secured by their inturned flanges to the same bolts.

3,681,886
PANEL TYPE WALL HAVING TIES FOR INTERCONNECTING THE PANELS
Robert Ekstrom, 7364 Via Capri, La Jolla, Calif.
Filed Feb. 22, 1971, Ser. No. 117,373
Int. Cl. E04b *2/82*
U.S. Cl. 52—489 **4 Claims**



The panel type wall comprises a plurality of panels disposed side by side and further comprises ties in the rear of the panels for interconnecting the next adjacent panels in a manner in which the confronting edges are in abutting relationship with one another. These ties can be rendered ineffective by moving one of the panels relative to others so that the one panel can be removed from the panel wall.

3,681,887
DECORATIVE TRIM STRIP ASSEMBLY
Theodore Loew, Schenectady, N.Y., assignor to The Standard Products Co., Cleveland, Ohio
Filed June 8, 1970, Ser. No. 44,639
Int. Cl. E04f *19/02*
U.S. Cl. 52—718 **2 Claims**

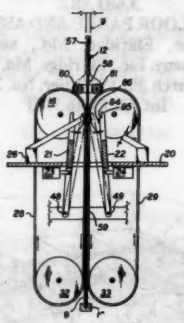


A trim strip assembly comprising two elements, one of these being a retainer element and the other being a cooperative insert strip element. The retainer element has a base strip which is adapted to be secured to a support; at the edges of the base strip there are opposed inwardly turned flanges. There is a tongue on each flange projecting toward the base strip. The cooperative insert strip element has a decorative surface strip which is generally arcuate in cross-section. Along each edge of the surface strip there is a groove, and the grooves are tightly engaged with the tongues in the assembled condition of the elements. Each one of the two elements is transversely elastically deformable for ease of assembly and disassembly. In the assembled condition, the insert element is in firm elastic engagement at its edges with the base strip, being biased into that condition by the opposed and inwardly turned flanges on the base strip with which the grooves engage by way of the tongues on the flanges. The decoratable strip on the insert is provided with a decorative laminate.

3,681,888
JOINTED STRUCTURAL MEMBER
Tae Y. Kim, 208 W. Fifth St., North Vancouver, British Columbia, Canada
Filed Sept. 16, 1970, Ser. No. 72,623
Int. Cl. F04c *3/42*; A63h *33/04*
U.S. Cl. 52—732 **6 Claims**

A standard building part having joint elements which enable the part to be joined side-to-side and end-to-end with other such parts to form a frame for a building. The assembled and interconnected parts provide a module of construction which is arranged with other modules to erect a self-supporting frame of a desired shape and size.

3,681,889
METHOD AND APPARATUS FOR AXIALLY COMPRESSING AND STORING FLEXIBLE TUBULAR MATERIAL
Joseph A. Dussich, 221-47 Horace Harding Expressway, Bayside, N.Y.
Filed Oct. 8, 1969, Ser. No. 864,573
Int. Cl. A22c *13/00*; B65b *17/00*
U.S. Cl. 53—3 **13 Claims**



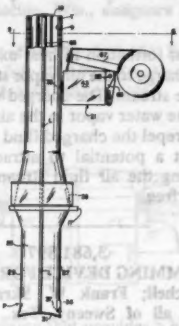
A "floating" mandrel is inserted within a tube of flexible material and means are provided on the external face of said flexible material for supporting this mandrel in position as the material is fed over the mandrel and processed. The processing includes selective shirring or gathering of the material by the utilization of braking means which resist passage of the material while the drive means continue opera-

tion. Alternate sections of the gathered material are fastened together and a cartridge of axially compressed material is generated wherein sections of secured compressed material alternate with sections of unsecured compressed material. This cartridge may then be removed for utilization as desired.

3,681,890
METHOD OF AND APPARATUS FOR FORMING PACKAGES WITH TEAR TABS

Frank E. Pringle, Jr.; George Allan West, both of Sheboygan; Walter H. Vogel, Plymouth; Richard W. Safranski, and Frederick R. Drake, both of Sheboygan, all of Wis., assignors to Hayssen Manufacturing Company, Sheboygan, Wis.

Filed July 2, 1970, Ser. No. 51,775
Int. Cl. B65b *61/18*
U.S. Cl. 53—14 **5 Claims**

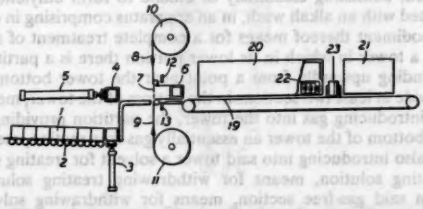


In the production of packages by the form-fill-seal technique, a tear tab is heat-sealed to each package for tearing an opening in the package. The packages are made by forming a web of heat-sealable packaging material into tubing around a mandrel, and forming package end seals across the tubing spaced at package length intervals by means of end sealers which move up and down below the lower end of the mandrel through a package length stroke and which act to feed the tubing downwardly off the lower end of the mandrel one package length increment on each downstroke. A tear tab is heat-sealed to the tubing on the mandrel during each dwell interval of the tubing between successive downstrokes, the tabs thus being spaced at package length intervals on the tubing, one for each package ultimately formed.

3,681,891
METHOD FOR PACKAGING

Reinhold Friedrich Stryck, Gothenburg, Sweden, assignor to Elektriska Svetsningsaktiebolaget, Gothenburg, Sweden

Filed June 10, 1970, Ser. No. 45,045
Claims priority, application Sweden, June 10, 1969, 8203/69
Int. Cl. B65b *11/12*
U.S. Cl. 53—30 **1 Claim**

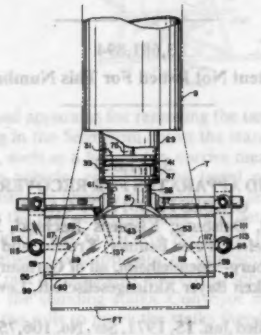


A substantially prismatic or cylindrical article having two parallel, plane end faces is provided with a tubular sheath of a shrinkable plastic sheet material the end portions of which project beyond said end faces. The sheath is subjected to heat to make said end portions shrink into plane shape. The length of the projecting end portions is such that they when shrunk do not entirely cover the respective end faces. Prior to the heating step, a patch of plastic sheet material is applied to each of the end faces. After the heating step, each of the shrunk end portions of the sheath are welded on to the underlying plastic patch.

3,681,892
PACKAGING MACHINE

Richard W. Safranski, Sheboygan, Wis., assignor to Hayssen Manufacturing Company, Sheboygan, Wis.

Filed Aug. 26, 1970, Ser. No. 67,015
Int. Cl. B65b *31/02*
U.S. Cl. 53—180 **10 Claims**

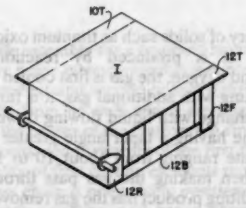


A form-fill-seal packaging machine having a vertical mandrel around which a web of packaging material is formed into tubing, the tubing being fed downward off the lower end of the mandrel and formed, below the lower end of the mandrel, with transverse seals constituting package end seals at package length intervals. Below the lower end of the mandrel is a nozzle for delivery of the product to be packaged into the lower end of the tubing. The nozzle is formed with means for spreading the tubing flat, this spreading means being provided with a passage for communication between the space in the mandrel thereabove and the tubing therebelow, and presser plates are provided for pressing the opposed walls of the tubing against the spreading means.

3,681,893
PACKING MACHINE FOR FOLDING BLANKS AROUND ARTICLE GROUPS FED CONTINUOUSLY THERETHROUGH

Raymond R. De Barge, Cromwell, Conn., assignor to Emhart Corporation, Bloomfield, Conn.

Filed June 22, 1970, Ser. No. 48,408
Int. Cl. B65b *7/20, 49/14*
U.S. Cl. 53—209 **5 Claims**



Segregated groups of articles are mated with an initially flat blank which is then folded into a U-shaped configuration

around the bottom, front and top sides of the group articles. A pocket chain conveyor receives the U-folded case, with its article group, and each pocket includes a rear gate for folding a trailing bottom flap upwardly against the rear side of the article group. An overhead flight bar then folds a trailing top flap, or rear panel of the blank, downwardly so that a second rear gate on the pocket chain can hold both top and bottom rear flaps in place prior to folding the laterally opposed side flaps inwardly against the sides of the case. The trailing top flap, or rear panel, has side flaps which must be folded forwardly, and this is done by spaced elements on the flight bar. These elements engage the rear panel side flaps adjacent their respective fold lines so that the rear panel is not only folded downwardly as described, but so that as the rear panel abuts the rear of the case, further forward movement of these elements creases the side flaps at their respective fold lines to fold them forwardly. The remaining side flaps are folded in a conventional manner by fixed ploughs or the like.

3,681,894

Patent Not Issued For This Number

3,681,895

PROCESS AND APPARATUS FOR RECOVERING METAL OXIDES FROM HOT GASES

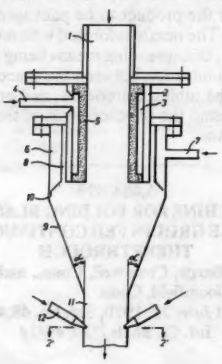
Hans Zirngibl, Duisburg; Klemens Jaschiski, Krefeld; Karl Brandle, Krefeld; Peter Beumer, Krefeld, and Walter Weidmann, Duisburg-Muendelheim, all of Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

Filed Jan. 15, 1971, Ser. No. 106,755

Claims priority, application Germany, Feb. 4, 1970, P 20 05 010.6

Int. Cl. B01d *45/00*

U.S. Cl. 55—71 **10 Claims**



In the recovery of solids such as titanium oxide from the hot gas in which it is produced by reaction of titanium tetrachloride and oxygen, the gas is first cooled to below about 800° C. by mixing with additional gas, it is further cooled by direct heat exchange with liquid flowing down the walls of a converging zone having a taper angle greater than about 7°, the gas flow rate ranging from about 10 to 100 meters per second, and then making the gas pass through a spray of liquid. The resulting product has the gas removed and partially recycled for initial cooling and a part of the liquid suspension of oxide is recycled as the cooling liquid.

3,681,896

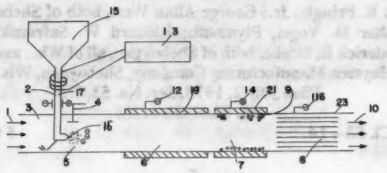
CONTROL OF FROST FORMATION IN HEAT EXCHANGERS BY MEANS OF ELECTROSTATIC FIELDS

Henry R. Velkoff, Worthington, Ohio, assignor to The Ohio State University, Columbus, Ohio

Filed July 9, 1970, Ser. No. 53,450

Int. Cl. B03c *5/00*

U.S. Cl. 55—107 **14 Claims**



Control of frost formation in heat exchangers by applying an electrostatic charge to the air-vapor stream and to water introduced into the stream. The charged water droplets induce coalescence of the water vapor in the air. An electrical potential is applied to repel the charged fluid and in the next region the surface is at a potential to attract the charged vapor thereby permitting the air fluid stream to pass to the heat exchanger vapor free.

3,681,897

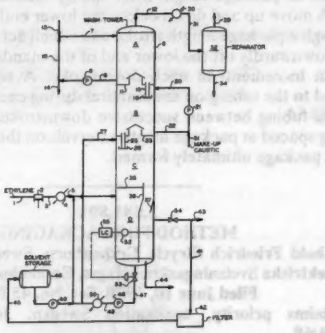
SOLVENT SKIMMING DEVICE FOR CAUSTIC WASHER

Norris W. Mitchell; Frank W. Skraba, and William L. Houston, Jr., all of Sweeny, Tex., assignors to Phillips Petroleum Company

Filed Aug. 11, 1970, Ser. No. 62,865

Int. Cl. B01d *47/00*

U.S. Cl. 55—227 **6 Claims**



Apparatus is provided for treating a cracked hydrocarbon gas, e.g., an effluent resulting from the pyrolytic conversion of a feed, consisting essentially of ethane to form ethylene, is treated with an alkali wash, in an apparatus comprising in one embodiment thereof means for a complete treatment of said gas, a tower in which in its lower portion there is a partition extending upwardly from a point near the tower bottom to provide at least two sections in the bottom of the tower, means for introducing gas into the tower, the partition providing in the bottom of the tower an essentially gas-free section, means for also introducing into said tower a solvent for treating said treating solution, means for withdrawing treating solution from said gas-free section, means for withdrawing solvent from a place in said gas-free section, and means for shielding or baffling said place; there being provided above the sections

formed by the partition a top section for water washing gas to remove therefrom any entrained treating solution and/or solvent; and a section below said top section for treating gas with treating solution a section below the last mentioned section for treating gas with further treating solution and/or with solvent, introduced to dissolve from said treating solution a polymer formed therein and/or polymer forming constituents. Apparatus is also provided for treating the used solvent by contact with an adsorbent, e.g., activated charcoal or carbon or functional equivalent, to remove from the solvent polymer and polymer-forming constituents, rendering the solvent suitable for reuse and avoiding ultimate plugging of pumps, pipes, heat exchangers and other equipment.

3,681,898

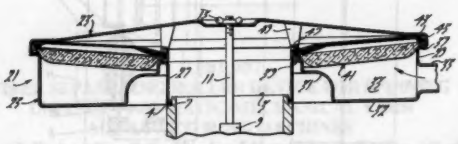
DUAL MEDIA AIR FILTER

John D. Hopkins, Franksville; James C. McLaren, Racine, both of Wis.; Ronald A. Johnson, Jackson, Mich., and Robert J. Offer, Racine, Wis., assignors to Tenneco Inc., Racine, Wis.

Continuation-in-part of Ser. No. 797,466, Feb. 7, 1969. This application July 27, 1970, Ser. No. 58,395

Int. Cl. B01d *27/06*

U.S. Cl. 55—487 **4 Claims**



An air filter construction that provides a high capacity and high efficiency in low overall height and is suitable for use with high performance automobile internal combustion engines includes a dual media filter in which a pre-wetted upstream fibrous depth filter element is secured to a downstream paper element and a metal backfire screen by resilient peripheral seals that may be mounted on suitable ledges inside of a suitable air filter housing.

3,681,899

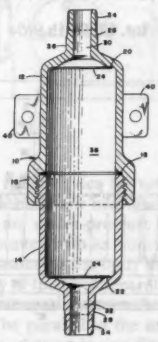
SEPARABLE FILTER HOUSING AND CARTRIDGE FOR A FLUID FLOW LINE

George A. Grote, Glen Rock, Pa., assignor to National Bank and Trust Company of Central Pennsylvania, Administrator, d.b.n.c.t.a. of Willard C. Beach deceased and Administrator c.t.a. of the Estate of Mary B. Beach, Hanover, Pa.

Filed July 9, 1970, Ser. No. 53,475

Int. Cl. B01d *39/08*

U.S. Cl. 55—503 **6 Claims**



A filter unit for use in filtering fluids and especially gases including compressed air to remove contaminants therefrom and comprising a pair of similar transparent cup-shaped housing members defining a cylindrical cavity which receives a filter cartridge filled with pulverent filter material enclosed in a sheath formed from porous textile material.

3,681,900

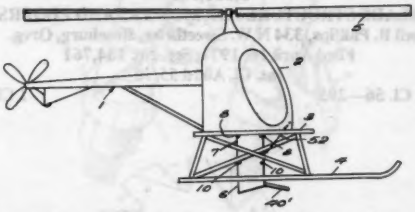
HYBRID SEED DETASSELER

Raymond H. Blevins, Lexington, Ill., assignor to Carter Blevins Detasslers, Inc., Danville, Ill.

Filed Dec. 3, 1970, Ser. No. 94,798

Int. Cl. A01d *45/02*

U.S. Cl. 56—63 **15 Claims**



A method and apparatus for removing the tassel portions of stalks standing in the field from above the standing grain. An aerial vehicle, such as a helicopter, carries means for operating below the vehicle, receiving the tassel portions of the stalks and causing an upward pull thereon to separate the tassel portions at the first or second joint. The detasseling means includes a pair of rolls to receive the tassel portions of the stalks therebetween and operate in opposed directions to cause upward pull on the stalks, thereby to separate the tassel portions from the standing stalks. Conveyor means operates lengthwise of the rolls to move the stalks therebetween along the length of the rolls. Feeding means is provided at the forward ends of the rolls and a cutter at the back ends of the rolls to remove any of the tassel portions not separated by the rolls.

3,681,901

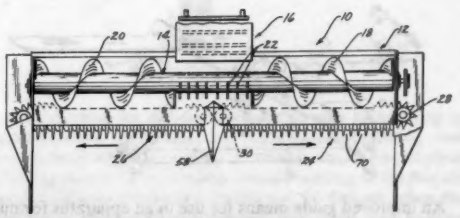
CUTTING KNIFE ASSEMBLY FOR A COMBINE

Grame R. Quick, Wesley F. Buchele, both of Ames, Iowa, assignors to Iowa State University Research Foundation, Ames, Iowa

Filed March 8, 1971, Ser. No. 121,894

Int. Cl. A01d *47/00*

U.S. Cl. 56—13.6 **9 Claims**



A cutting knife assembly for a combine having an elongated platform with an auger means rotatably mounted thereon. The auger means has first and second helical fighting sections extending inwardly from its ends which are adapted to convey the cut crop to the center of the platform. A first endless chain is operatively positioned forwardly of the first flighting section and has a plurality of first cutting elements mounted thereon. A second endless chain is operatively positioned forwardly of the second flighting section and has a plurality of second cutting elements mounted thereon. The first and second

chains are operated in opposing directions so that the first and second cutting elements move away from the center of the platform as the cutting elements cut the standing crop. The opposing action of the cutting elements causes the crop stems to be properly oriented with respect to the flighting sections so that the stems will be inclined towards the center of the platform in the same direction as the auger feed.

3,681,902

Patent Not Issued For This Number

3,681,903

BLADE STRUCTURE FOR MOWERS AND EDGERS

Russell B. Phillips, 334 N.W. Sweetbrier, Roseburg, Oreg.

Filed April 16, 1971, Ser. No. 134,761

Int. Cl. A01d *55/18*

U.S. Cl. 56—295 **1 Claim**

A disc shaped blade having a plurality of circumferentially located cutting edges each disposed along a radial of the blade. Multiple blade projections extend horizontally outward from the central blade area. Each projection has an integral fin portion extending upwardly and diagonally across the blade projection to impart a desired discharge direction to grass clippings and the like.

3,681,904

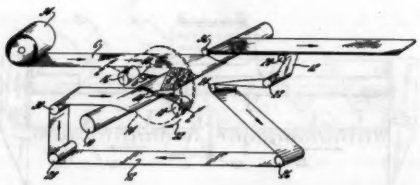
ROTATING TURNING BAR WITH REMOTE POSITION CONTROL

Bernard O. Stieg, Neehah, Wis., assignor to Kimberly-Clark Corporation, Neenah, Wis.

Filed Feb. 8, 1971, Ser. No. 113,233

Int. Cl. B65h *81/04*; B31c *9/00*

U.S. Cl. 57—3 **10 Claims**



An improved guide means for use in an apparatus for making a multi-ply cross-laid material. The apparatus includes one or more satellite rolls of web material carried by a rotatable carrier disposed about a mandrel on which a continuous carrier belt is helically wound. A web from the satellite rolls is cross-laid on the belt and a subsequent web is then applied to the cross-laid web in advance of a slitter which slits the cross-laid web to yield the multi-ply material.

The guide means includes an initially angularly adjustable turning bar that is also remotely adjustable so that the turning bar is movable in a linear direction while maintaining the initial angular position. The guide means also includes an idler roller around which the web passes prior to reaching the turning bar to maintain the angle of the web approaching the turning bar constant regardless of the amount of web present on the satellite roll.

3,681,905

METHOD AND APPARATUS FOR AUTOMATICALLY WINDING FLYER BOBBINS

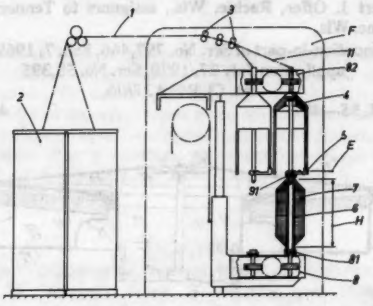
Hans Furtmeier, and Rudolf Arnhold, both of Ingolstadt, Germany, assignors to Schubert & Salzer Maschinenfabrik Aktiengesellschaft, Ingolstadt, Germany

Filed Oct. 6, 1969, Ser. No. 863,995

Claims priority, application Germany, Oct. 9, 1968, P 18 01 978.8

Int. Cl. D01h *1/38, 9/16*

U.S. Cl. 57—34 TT **15 Claims**



When a bobbin tube has been filled the pressing finger is moved a short distance beyond the bobbin end and a few turns of roving are wound on an adjacent reserve winding surface. The bobbin and reserve winding surface are moved apart and the roving severed between them. When an empty bobbin tube is positioned on the flyer, one layer of roving is wound onto it; then a stripper pushes the few turns of roving axially from the reserve winding surface onto the tube.

3,681,906

METHOD AND APPARATUS FOR DOFFING FULL BOBBINS AND DONNING TUBES ON RING SPINNING AND RING TWISTING MACHINES

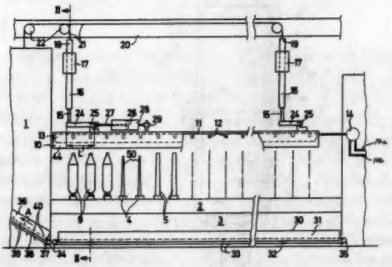
Ulrich Burgermeister, Winterthur; Carlo Gaggini, Elgg, and Arthur Wurmli, Winterthur, all of Switzerland, assignors to Rieter Machine Works Ltd., Winterthur, Switzerland

Filed April 19, 1971, Ser. No. 135,335

Claims priority, application Switzerland, April 20, 1970, 5840/70

Int. Cl. D01h *9/04*

U.S. Cl. 57—52 **43 Claims**



A method of, and apparatus for, automatically doffing full bobbins and donning empty tubes at textile machines, espe-

cially ring spinning and ring twisting machines, wherein a support rail is moved from a idle position into a gripping position for full bobbins placed upon spindles. The full bobbins are gripped by means of the support rail while it is in such gripping position, and then the support rail is moved upwards so as to doff the full bobbins from the spindles. The support rail with the doffed full bobbins is moved substantially parallel to and away from the machine, each point of the support rail moving along a predetermined path. The support rail with the doffed full bobbins is lowered towards a transporting mechanism extending along the textile machine, and the full bobbins are substantially vertically deposited onto the transporting mechanism. The transporting mechanism is placed in motion along the machine, the support rail lifted, and the full bobbins deposited lengthwise onto the transporting mechanism in the direction of transport thereof. Empty tubes pre-arranged along the machine are gripped by the support rail, the support rail with the gripped empty tubes then is moved upwards and in a direction substantially parallel and towards the machine, each point of the support rail moving along a predetermined path, the empty tubes are donned onto spindles; and following completion of the donning operation the support rail is moved back into its idle position.

3,681,907

FIBER SEPARATING ROLLER DEVICE FOR SPINNING UNITS OF PNEUMATIC-MECHANICAL YARN MANUFACTURING MACHINES

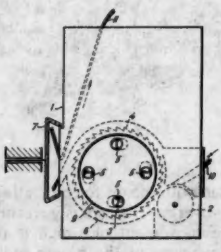
Karel Jindra; Kamil Pavlik; Josef Kas; Zdenek Kocian, all of Cerveny; Vaciav Hanus, Olesnice, and Jaroslav Tyls, Studnice, all of Czechoslovakia, assignors to Elitex Zavody testilniho strojirenstvi generalni reditelstvi, Liberec, Czechoslovakia

Filed Feb. 5, 1971, Ser. No. 112,858

Claims priority, application Czechoslovakia, March 5, 1970, 1466

Int. Cl. D01h *1/12, 7/00*

U.S. Cl. 57—58.91 **7 Claims**



A fiber separating roller device for spinning units of pneumatic-mechanical machines for manufacturing yarn, particularly by means of an under-pressure (reduced pressure) spinning chamber mounted with its front surfaces in the recess of and substantially sealed to the body of the fiber separating mechanism. The body of the fiber separating roller is provided with at least two continuous passages therethrough. The axes of the passages may be parallel to the axis of rotation of the fiber separating roller, skewed in one direction relative to the axis of rotation of the fiber separating roller, or alternating skewed in several directions relative to the axis of the fiber separating roller.

3,681,908

SPINDLE BRAKE

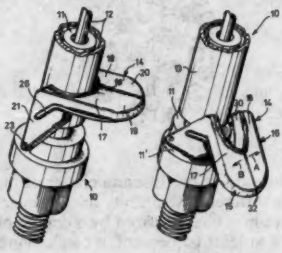
Kurt Hohloch, Ebersbach, Germany, assignor to Zinser-Textilmaschinen Gesellschaft mit beschrankter Haftung, Ebersbach, Germany

Filed Aug. 7, 1970, Ser. No. 62,082

Claims priority, application Germany, Feb. 6, 1970, P 20 05 463.1

Int. Cl. D01h *7/22*

U.S. Cl. 57—88 **16 Claims**



A manually operable brake assembly which straddles and, when actuated, frictionally engages a cylindrical rotating member, such as a spindle, and which comprises two identical brake components provided with friction faces and a resilient yoke having the function of holding said braking components together, supplying the braking force and ensuring that the brake assembly is stably maintained in both its operative and its inoperative positions.

3,681,909

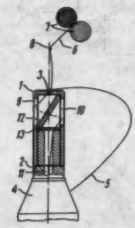
SPINDLE HEADPIECE FOR THREAD SPINNING AND TWISTING APPARATUS

Petr Konstantinovich Korikovsky, Jury Semenovich Kulichkov, and Evgeny Dmitrievich Petukhov, all of Moscow, U.S.S.R., assignors to Vsesojuzny Nauchna-Issledovatelsky institut Leakogi textilnogo Mashinostroemia, Moscow, U.S.S.R.

Filed July 28, 1970, Ser. No. 58,932

Int. Cl. D01h *1/00, 13/08*

U.S. Cl. 57—106 **7 Claims**

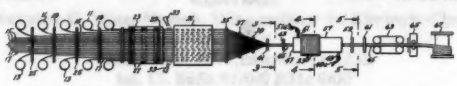


A head-piece for use on a tubular spindle of spinning or thread-twisting apparatus for continuously twisting two threads for producing a supply of twisted yarn; the head-piece including means for preventing counter-twisting of the threads due to internal stresses and tension on the threads when the apparatus is braked, for example, whereby snags, loop knitting faults etc. are substantially obviated and improved efficiency and product-quality are achieved; the head-piece being generally tubular and axially communicating with a tubular spinning mandrel, the head-piece including a central opening and generally diametrically opposed lateral openings whereby threads are progressively disposed in a path starting from the central opening, out of one lateral opening, exteriorly of the head-piece and back into the other lateral opening to pass therefrom axially through the spindle; the head-piece including partitions; tubular sleeves with internal slots, and specially conformed slots to keep the threads from counter-twisting.

3,681,910
COMPOSITE YARN PRODUCT
Cecil Everett Reese, Kinston, N.C., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
Filed March 31, 1971, Ser. No. 129,818
Int. Cl. D02g 3/04
U.S. Cl. 57—140 BY 4 Claims

A composite yarn of two discrete classes of filaments, each class having a different dye affinity or dissimilar inherent apparent coloration is characterized by a degree of filament intermingling of at least 65 percent, a break elongation from 5 to 100 percent, the difference in percent break elongation between the discrete classes of filaments being less than 15, and a tenacity from 1.0 to 10 gpd. The yarn is produced by separately spinning or cospinning two synthetic fiber-forming polymeric compositions into a multiplicity of discrete filaments, combining the filaments into a composite yarn during or prior to drawing the filaments as an integral yarn, and further processing the yarn to yield the desired properties.

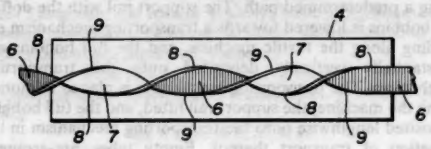
3,681,911
SEALED WIRE ROPE AND STRAND AND METHOD OF MAKING SAME
Darral V. Humphries, Allentown, Pa., assignor to Bethlehem Steel Corporation
Continuation-in-part of Ser. No. 850,148, Aug. 14, 1969, abandoned. This application March 30, 1971, Ser. No. 112,211
Int. Cl. D07b 1/16; D02g 3/36
U.S. Cl. 57—149 16 Claims



A wire rope or strand is provided with a plastic foam type internal sealant to cushion the wires and strands and provide corrosion protection.

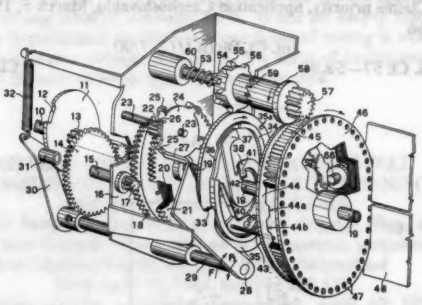
3,681,912
METHOD OF IMPARTING A FALSE TWIST TO A THERMOPLASTIC RIBBON
Bernard Silverman, 2405 Wentworth Street, Raleigh, N.C.
Filed Nov. 12, 1970, Ser. No. 88,626
Int. Cl. D02g 3/06, 1/02
U.S. Cl. 57—157 TS 5 Claims

A method is provided for imparting a false twist to a thermoplastic, monofilament ribbon, i.e., a monofilament which has a substantially rectangular cross-section and a width to thickness ratio of at least 3 to 1. According to the method, the ribbon is twisted several times and passed over a hot surface and both ends of the ribbon are held under pressure thus retaining the twists on the surface. As the ribbon passes over



the surface it is heated on a first side, a first edge, a second side and a second edge in that order, imparting differential orientation to the heated portions which results in a ribbon having a false twist or curl. These ribbons are useful in the fabrication of synthetic turf giving a high bulk effect thereto.

3,681,913
CARRY-OVER MECHANISM WITH VARIABLE RATIOS
Fermo Solari, Udine, Italy, assignor to Solari & C/Udine S.p.A., Udine, Italy
Filed July 21, 1970, Ser. No. 56,856
Claims priority, application Italy, July 30, 1969, 60545 A/69
Int. Cl. G04b 19/24
U.S. Cl. 58—4 2 Claims

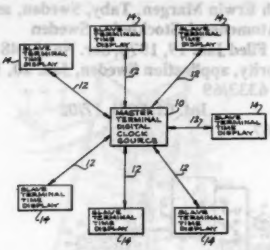


In a clock provided with means for indicating the days and the months, a carry-over mechanism is governed by a cam or similar element the movement of which is positively connected with the movement of the month indicating means, whereby the change-over mechanism is steadily in phase with both of said indicating means.

3,681,914
DIGITAL MASTER CLOCK
Harry R. Loewengart, New York, N.Y., assignor to Quasar Microsystems, Inc., Brentwood, N.Y.
Filed April 30, 1970, Ser. No. 33,276
Int. Cl. G04c 13/00, 9/00
U.S. Cl. 58—24 12 Claims

A master clock source develops clock signals for transmission to a plurality of receiving or "slave" terminals. The clock

signals are periodically scanned and transferred to the slave terminals once each second, thereby to continuously up-date the clock indication at the receiving terminals.



3,681,915
BALANCE WHEEL ASSEMBLY OF A BATTERY-DRIVEN TIMEPIECE

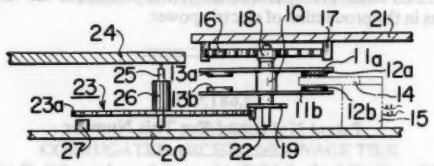
Kozaburo Kanazawa, and Eiji Kawakami, both of Tokorozawa, Japan, assignors to Citizen Watch Co. Ltd., Tokyo, Japan

Filed Sept. 28, 1970, Ser. No. 76,122

Claims priority, application Japan, Sept. 29, 1969, 44/77676

Int. Cl. G04c *3/04*; G04b *15/14*; F16h

U.S. Cl. 58—28 D **2 Claims**



This invention concerns with a drive balance wheel assembly for use in an electronic timepiece, an impulse pin being fixedly mounted to steppingly drive an escape wheel.

This improvement comprises the arrangement of said impulse pin so as to have an offset angle, 20° or more, relative to the common diameter of the balance and escape wheels for compensating unavoidable amplitude reduction as met with consumption of a source battery fitted in the timepiece.

3,681,916
ELECTRONIC SOUND ALARM CLOCK

Hiroshi Itoyama, Kadoma, and Hideki Abe, Osaka, both of Japan, assignors to Matsushita Electric Works, Limited, Osaka, Japan

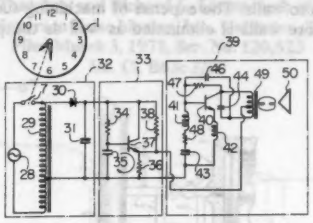
Filed May 13, 1970, Ser. No. 36,906

Claims priority, application Japan, May 31, 1969, 44/42747; May 31, 1969, 44/42748; Dec. 11, 1969, 45/15067; Dec. 11, 1969, 44/99929; Dec. 16, 1970, 44/118166

Int. Cl. G04c *21/00*

U.S. Cl. 58—39 **7 Claims**

An electronic sound alarm clock which comprises a clock mechanism, electric power source circuit having a pair of contacts to be closed at a set alarm time, a source voltage controlling means actuated upon closing of the contacts, an oscillator, and an electric signal-acoustic energy convertor. Said voltage controlling means is adapted to vary the supplied voltage as the time lapses so that, typically, an intermittent alarm sound is produced. By properly forming the controlling means, various types of alarm sounds which vary as the time lapses may be produced.



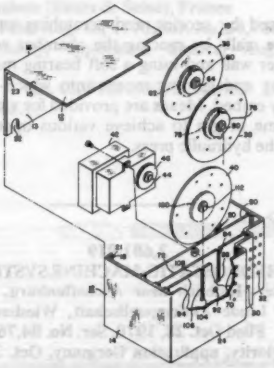
3,681,917
NUMERIC READOUT DEVICES

Paul Kroeger, 311 Willet Road, Philadelphia, Pa.

Filed Feb. 19, 1971, Ser. No. 116,811

Int. Cl. G04b *19/02*

U.S. Cl. 58—125 B **3 Claims**



A mechanical system for generating a numeric readout in indicating devices such as time pieces, calendars and the like. A face plate has opposed surfaces defining a matrix of openings therethrough. A disk means has a forward face with indicia disposed thereon in a predetermined arrangement. The disk means is mounted for rotation on a support adjacent to the face plate with the forward surface adjacent to one of the opposed surfaces of the face plate and in overlying relationship with the matrix of openings, whereby rotation of the disk means aligns predetermined indicia with predetermined openings of the matrix to generate a numeric readout through the matrix of openings.

3,681,918
PISTON ACCUMULATOR AND SYSTEM USING THE SAME FOR USE WITH HIGH PRESSURE HYDRAULIC APPARATUS

Milton Chanin, 2 Fern Lane, Matawan, N.J.

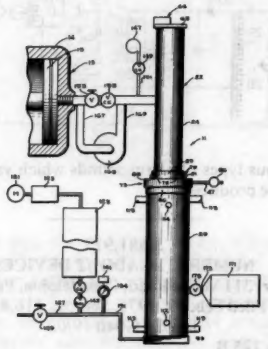
Filed Dec. 12, 1969, Ser. No. 884,674

Int. Cl. F15b *1/04*

U.S. Cl. 60—51 **11 Claims**

A piston accumulator for hydraulic actuators, presses or the like is formed with a plunger piston for reciprocating within gas and liquid receiving chambers which are sealed and separated from each other in such an effective manner that

compressed air rather than nitrogen may be used in the gas chamber without the danger of "dieselization." The plunger piston is guided and sealed by a piston and guiding means intermediate the liquid and gas chamber rather than by usual cylinder bore walls. The expense of machining such internal cylinder bore walls is eliminated as well as the problem of



leakage caused by scoring and scratching such machined cylinder bore walls by spacing the chamber walls from the piston plunger wall and using a soft bearing material for the piston sealing and guiding means into which dirt or other material may embed. Means are provided for varying pressure and/or volume of gas to achieve various operating characteristics for the hydraulic press.

3,681,919

HYDROSTATIC-MACHINE SYSTEM

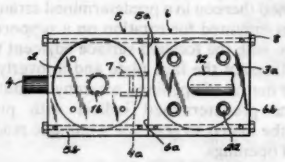
Franz Forster, Haibach near Aschaffenburg, Germany, assignor to Linde Aktiengesellschaft, Wiesbaden, Germany

Filed Oct. 28, 1970, Ser. No. 84,766

Claims priority, application Germany, Oct. 30, 1969, P 19 54 682.8

Int. Cl. F16d *31/06*

U.S. Cl. 60—53 A **15 Claims**



A hydrostatic-machine system in which a plurality of hydrostatic machines, e.g., pumps or motors, are connected together in building block or modular relationship by bolting at complementary confronting faces thereof. Each machine has an outer housing of prismatic, preferably cubic, configuration. The faces of the prism, which are not employed for connection with other such machines, are provided with cover plates and/or ports which can be connected with hydrostatic machines of the assembly via ducts attached upon removal of the plates.

3,681,920

METHOD AND MEANS FOR GENERATING ELECTRICITY AND VAPORIZING A LIQUID IN A THERMAL POWER STATION

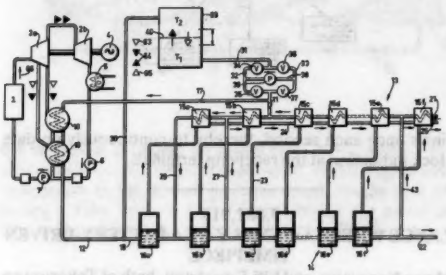
Peter Heinrich Erwin Margen, Taby, Sweden, assignor to Aktiebolaget Atomenergi, Stockholm, Sweden

Filed Jan. 19, 1970, Ser. No. 4,148

Claims priority, application Sweden, Jan. 20, 1969, 715/69; May 5, 1969, 6333/69

Int. Cl. F01k *17/02*

U.S. Cl. 60—67 **8 Claims**



A thermal power plant operates with a varying production of electric power. Simultaneously, the heat generated in the plant is used for evaporating a liquid in a multi-stage vaporizing process. When the plant operates at low electric power the excess heat capacity of the plant is accumulated in a heat-accumulator. When the plant operates at high electric power, said accumulated heat is used for evaporating the liquid in the vaporizing process. In this way the vaporizing process can be operated continuously and steadily, independent of the variations in the production of electric power.

3,681,921

Patent Not Issued For This Number

3,681,922

Patent Not Issued For This Number

3,681,923

METHOD AND APPARATUS FOR CONTROLLING SUBNATANT OIL SEEPAGE

Winfield H. Hyde, 618 Grand Ave., Berkeley, Calif.

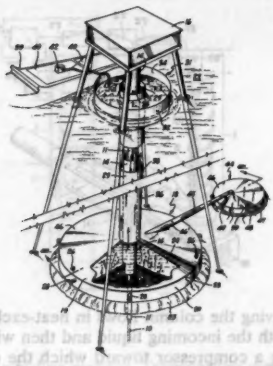
Filed April 28, 1969, Ser. No. 819,805

Int. Cl. E02b *3/00;* **E02d** *23/00*

U.S. Cl. 61—1 **3 Claims**

Method of and apparatus for controlling subnatant seepage of oil as from an under water oil well or the like. The method includes the steps of collecting the seepage within an underwater receptacle located along the floor of a body of water in which the seepage occurs utilizing the floor as one of the confining walls of the receptacle. The seepage thus collected is conveyed upwardly in a confined state to the surface of the body of water and is deposited into a receiver from which the collected oil can be transported to a reservoir. The apparatus includes a receptacle open at its bottom to overlie the particular floor area of the body of water at which seepage is or may be present so as to collect or confine the seepage along the floor which serves as the bottom wall of the receptacle. A seepage conduit connected with the receptacle may be disposed circumjacent the outer conduit of an underwater well with which the apparatus is associated, and such conduit functions to carry the seepage from the receptacle to the sur-

face of the water at which it empties into a receiver or reservoir from which the oil is pumped into a container for storage



and processing as, for example, separation of the oil from water admixed therewith.

3,681,924

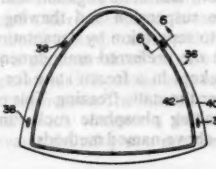
Patent Not Issued For This Number

3,681,925

CORRUGATED ARCHED DRAINAGE TILE

John D. Schmunk, and James L. Child, both of Findlay, Ohio, assignors to The Hancock Brick & Tile Company, Findlay, Ohio

Filed Aug. 7, 1969, Ser. No. 848,238
Int. Cl. E02b *11/00*; F16l *11/10*
U.S. Cl. 61—11 **11 Claims**



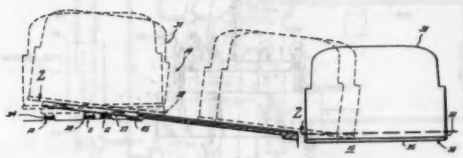
This drainage tile for the collection and disbursement of liquids is in the shape of an elongated tube made from a polymeric material such as polyethylene, polypropylene, etc. The tube has a slightly convex base in order to conform to the trench in which it rests. Sidewalls are connected to and arched upwardly and inwardly from the base to an apex where they join in a continuous curve. The sides and base are corrugated to provide greater resistance to compressive forces while permitting flexing and bending of the tube about its longitudinal axis.

3,681,926

SOLID LUBRICANT LAUNCHING ARRANGEMENT FOR A VESSEL

Russell S. Thatcher, and Richard L. Linam, both of Galveston, Tex., assignors to Kelso Marine, Inc., Galveston, Tex.

Filed March 3, 1971, Ser. No. 120,523
Int. Cl. B63c *3/00*
U.S. Cl. 61—67 **4 Claims**



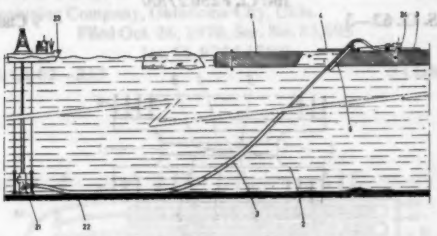
A solid lubricant launching arrangement for a vessel to facilitate movement of the vessel during launching.

3,681,927

DEVICE FOR LAYING SUBMARINE CABLES AND PIPES IN AREAS COVERED WITH ICE

Xuong Nguyen Duc, Montigny Les Cormelles, and Jean Marc Bonnamy, Chilly-Mazarin, both of France, assignors to Institut Francais Du Petrole des Carburants et Lubrifiants, Ruel Malmaison (Hauts de Seine), France

Filed Aug. 18, 1970, Ser. No. 64,704
Claims priority, application France, Aug. 18, 1969, 6928309
Int. Cl. F16l *1/00*; F25c *5/02*
U.S. Cl. 61—72.1 **9 Claims**



Device for laying submarine pipes and cables in bodies of water covered with ice including a slide bar mounted at an angle to the vertical on a platform capable of being displaced along the surface of the ice, the slide bar extending below the platform by a distance greater than the thickness of the ice and including a plurality of burners capable of heating a wall of the slide bar positioned for contact with the ice.

3,681,928

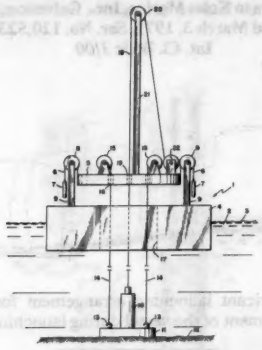
METHOD AND APPARATUS FOR CARRYING OUT UNDERWATER WELL OPERATIONS

Leonardus M. J. Vincken; Paul F. Agerbeek, both of c/o Brunei Shell Petroleum Company Limited, Seria, State of Brunei, and Piet E. Hoekenga, Carel van Bylandtaan 30, The Hague, all of Netherlands

Filed Sept. 15, 1970, Ser. No. 72,425
Int. Cl. B63b *35/44*, *43/06*; E21b *31/05*
U.S. Cl. 61—46.5 **8 Claims**

Method and apparatus for carrying out operations with respect to an underwater well wherein a cable is secured between the well and a platform mounted on a floating vessel

over the well site. The platform is mounted for vertical movement relative to the vessel and is continuously biased in an upward direction during said relative movement to maintain the drill pipe under tension and compensate for up and down movement of the vessel.



3,681,929

THERMOELECTRIC DEVICE

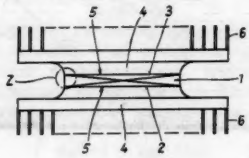
Hans Schering, Riensbergst 77, 1000 Berlin 20, Germany

Filed Dec. 7, 1970, Ser. No. 95,728

Claims priority, application Germany, Dec. 10, 1969, P 19 63 023.0

Int. Cl. F25b *27/00*

U.S. Cl. 62—3 9 Claims



Thermoelectric device includes at least one Peltier block formed of a plurality of n and p-conductive semiconductor legs and metallic bridge members interconnecting the legs at opposite warm and cold sides of the Peltier block, heat exchanger means located respectively at the warm and the cold sides of the Peltier block and having a surface disposed adjacent a surface of the bridge members located at the warm and the cold sides respectively of the Peltier block, and an intermediate layer of solid insulating material and deformable medium for improving heat transfer sandwiched between the surfaces at the warm and the cold sides respectively of the Peltier block, the insulating material being in the form of crystalline particles having a grain diameter exceeding the sum of the roughness depths of the surfaces between which the respective intermediate layer is sandwiched.

3,681,930

APPARATUS FOR MAKING CARBON DIOXIDE SNOW

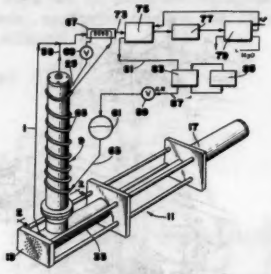
Lewis Tyree, Jr., 10401 South Oakley Avenue, Chicago, Ill.

Filed July 18, 1969, Ser. No. 843,017

Int. Cl. F25j *1/00*

U.S. Cl. 62—35 7 Claims

Carbon dioxide snow is produced by expansion of liquid CO_2 through a nozzle near the upper end of a hollow column so the snow travels downward along a spiral path adjacent the column inner wall while gas exits upward through an outlet at the top. A tubular baffle surrounds the upper outlet, and the snow is intermittently removed from the bottom. The cold CO_2 gas leaving the column flows in heat-exchange relationship first with the incoming liquid and then with hot gaseous CO_2 leaving a compressor toward which the cold gas flows. The gaseous CO_2 is compressed and condensed by a freon refrigeration unit while the pressure is held above 280 psig.



3,681,931

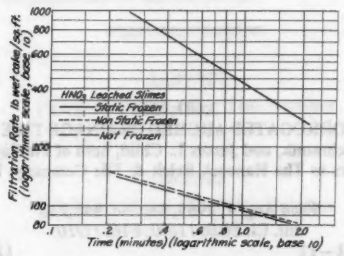
TREATMENT OF PHOSPHATE ROCK SLIMES BY FREEZING

Pablo Hadzeriga, Arvada, Colo., assignor to Hazen Research, Inc., Golden, Colo.

Filed March 11, 1970, Ser. No. 18,490

Int. Cl. B01d *9/04*

U.S. Cl. 62—58 14 Claims



This process is a method of treating an aqueous inorganic colloidal suspension to make it amenable to separation by decantation, filtration, and centrifugation and comprises statically freezing the suspension and thawing the thus frozen suspension prior to separation by decantation, filtration, and centrifugation. In the preferred embodiment of the process, the suspension is kept in a frozen state for a predetermined length of time after the static freezing. This process is particularly adept at making phosphate rock slimes amenable to separation by the above-named methods.

3,681,932

CRYSTALLIZATION COLUMN

Max Huber, Winterthur, and Gerhard Alfred Schutz, Effretikon, both of Switzerland, assignors to Sulzer Brothers, Ltd., Winterthur, Switzerland

Filed June 12, 1969, Ser. No. 832,668

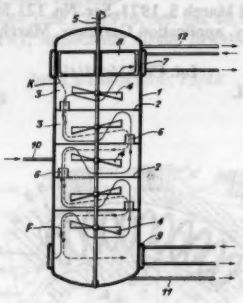
Claims priority, application Switzerland, May 8, 1969, 7080/69; May 9, 1969, 7126/69; June 19, 1968, 9121/68

Int. Cl. B01d *9/04, 9/02, 11/04*

U.S. Cl. 62—123 1 Claim

The column is divided into individual mixing chambers by separating walls disposed transversely of the flows of the

phases. Each separating wall comprises a passageway for a counterflow of the phases between adjacent mixing chambers and agitating means are disposed in each chamber to agitate



the phases in a whirling manner. Transporting means are also provided to effect passage of the *crystals between the mixing chambers.*

3,681,933

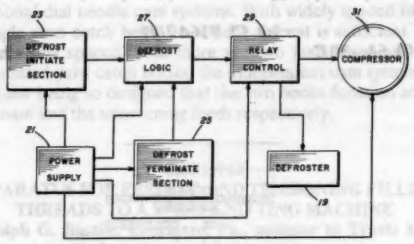
DEFROST CONTROL

Frank T. Check, Jr., Orange, Conn., assignor to Dynamics Corporation of America, New York, N.Y.

Filed Aug. 20, 1970, Ser. No. 65,420

Int. Cl. F25d *21/06*

U.S. Cl. 62—156 **6 Claims**



A defrost control for a refrigerator wherein first and second thermistors are mounted in conductive contact with the evaporator coil and a third thermistor is mounted so as to be responsive to the ambient temperature within the unit. Defrost is initiated when a predetermined relative value occurs indicating the temperature differential between the evaporator and the ambient temperature. The thermistor transmits signals to a logic section which controls a defrost relay. A third thermistor deactivates the relay at a predetermined evaporator temperature.

3,681,934

REFRIGERATION AND DEFROST SYSTEM

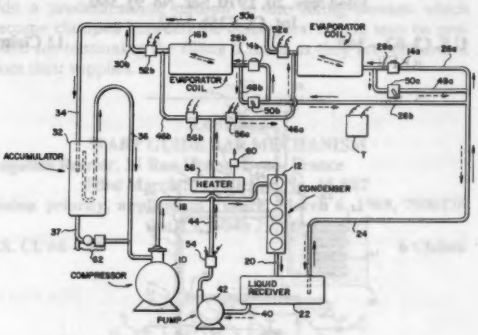
Arthur F. Tudury, Hillsborough, Calif., assignor to Bangor Punta Operation, Inc., Greenwich, Conn.

Filed Sept. 11, 1970, Ser. No. 71,434

Int. Cl. F25d *21/06*

U.S. Cl. 62—156 **4 Claims**

The system includes a closed cycle, series connected compressor, condenser, expansion valve and evaporator with refrigerant flowing through the system in one direction for the refrigerating cycle. For defrosting, a conduit is provided for delivery of subcooled refrigerant from the outlet of the condenser to the outlet of the evaporator, a pump being provided to pump refrigerant in the opposite direction through the evaporator to effect defrosting thereof.



3,681,935

Patent Not Issued For This Number

3,681,936

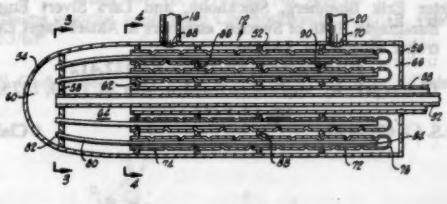
HEAT EXCHANGER

Robert G. Park, Del City, Okla., assignor to Oklahoma Manufacturing Company, Oklahoma City, Okla.

Filed Oct. 26, 1970, Ser. No. 83,695

Int. Cl. F25d *17/00*

U.S. Cl. 62—333 **3 Claims**



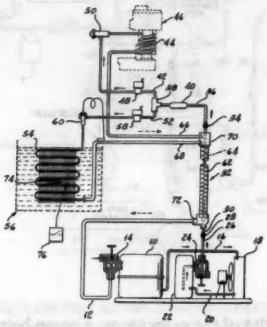
A heat exchanger adapted for use in a combination heating and refrigeration system for transferring heat to or from a secondary refrigerant, which includes a plurality of heat exchange tubes closed at one end and opened at the other end with helical corrugations formed in the walls thereof, and a restrictor tube extending into each heat exchange tube and communicating with the closed end of the respective heat exchange tube to receive the primary refrigerant first directed into the respective heat exchange tube, wherein the closed ends of the heat exchange tubes are lower than the open ends thereof and liquid primary refrigerant accumulates in the closed ends of the heat exchange tubes when the exchanger is used in a heating system, such that the rate of flow of primary refrigerant through the heat exchanger is automatically controlled for both refrigeration and heating system operations, and the same amount of primary refrigerant may be used when the system is used for either heating or refrigeration.

3,681,937

REFRIGERATION SYSTEM FOR COLD DRINK MACHINES

Alan D. Barden, Lake Hiawatha, N.J., assignor to Rowe International Inc., Whippany, N.J.

Filed Nov. 20, 1970, Ser. No. 91,380
Int. Cl. F25b 5/00
U.S. Cl. 62—340 11 Claims



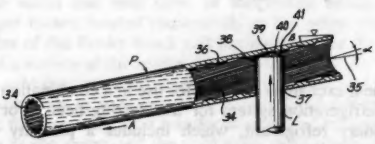
An improved refrigeration system for a machine for dispensing cold drinks with or without ice in which liquid refrigerant is supplied from a compressor through the central tube of a vertically disposed elongated heat exchanger having a surrounding jacket spaced from the tube by a spiral path-forming member alternatively to the upper end of a vertically disposed icemaker evaporator coil or to the upper end of an icebank evaporator coil for return flow of the refrigerant in gaseous state through a gravity system to the upper end of the heat exchanger jacket for flow downwardly along a spiral path in heat exchange relationship with the liquid refrigerant to the suction line of the compressor.

3,681,938

ABSORPTION REFRIGERATION APPARATUS OF THE INERT GAS TYPE

Peter Erik Blomberg, Stockholm, and Lars Sivert Enger, Bandhagen, both of Sweden, assignors to Aktiebolaget Electrolux, Stockholm, Sweden

Filed March 9, 1971, Ser. No. 122,412
Claims priority, application Sweden, May 28, 1970, 7373/70
Int. Cl. F25b 15/10
U.S. Cl. 62—490 5 Claims



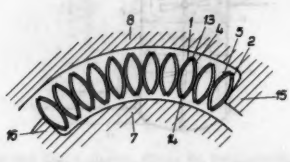
Liquid flows in the presence of an inert gas in heat transfer members, such as the evaporator and absorber, of an inert gas circuit of absorption refrigeration apparatus. The heat transfer members are formed by piping which slopes downward and is inclined at an acute angle to the horizontal and has a plurality of internal helical capillary grooves extending lengthwise of the piping. Liquid is supplied to the piping by a conduit which extends therein and terminates in a discharge opening. The discharge opening faces the upper inner surface of the piping and is at such distance therefrom that liquid outside the opening which forms at such region, due to the surface tension of the liquid, physically contacts the inner surface.

3,681,939

ELASTIC SHAFT COUPLING WITH METALLIC ELEMENTS

Karlheinz Timtner, Hofheimer Strasse 34; Albrecht Maurer, Hoelderlinweg 18, and Ruprecht Maurer, Theodor-Storm-Strasse 20, all of Bad Homburg, Germany

Filed March 5, 1971, Ser. No. 121,509
Claims priority, application Germany, March 7, 1970, P 20 10 957.3
Int. Cl. F16d 3/19
U.S. Cl. 64—27 L 12 Claims



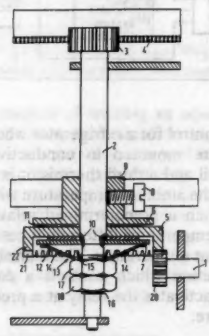
The invention relates to an elastic shaft coupling with elastic metallic elements disposed between the driving cams of the coupling members.

3,681,940

FRICTION CLUTCH

Walter Albrile, Turin, Italy, assignor to Ing. C. Olivetti & C., S.p.A., Ivrea(Torino), Italy

Filed July 10, 1970, Ser. No. 53,891
Claims priority, application Italy, July 15, 1969, 52646 A/69
Int. Cl. F16d 7/02
U.S. Cl. 64—30 C 8 Claims

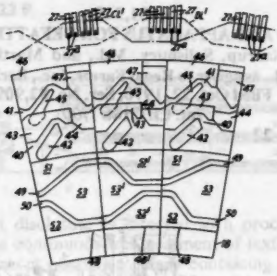


A friction clutch having at least one driven disk, a driving disk, and a friction disk interposed between each of the driven disks and the driving disk. The coefficient of friction between the driven disk and the friction disk is greater than the coefficient of friction between the driving disk and the friction disk when below a predetermined temperature and less than the coefficient of friction between the driving disk and the friction disk above the predetermined temperature.

3,681,941
YARN FEEDING ARRANGEMENTS FOR CIRCULAR KNITTING MACHINES

Henry Sidney Burdett, Oadby, Leicester, and Ronald Harris, Leicester, both of England, assignors to Stibbe Machinery Limited, Leicester, England

Filed June 22, 1970, Ser. No. 48,108
Claims priority, application Great Britain, July 2, 1969, 33,421/69
Int. Cl. D04b 9/06, 15/48
U.S. Cl. 66—19 **7 Claims**

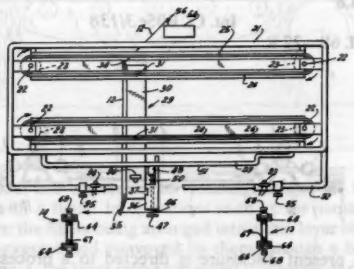


A multi-feed circular knitting machine of the cylinder and dial type is equipped with selectively operable yarn change guides at each feed and has located in its needle dial yarn catching means for engaging a yarn supplied by a guide and positively introducing it to the cylinder needles. The dial cam cap has mounted on it entirely independent cam systems at the feeds for operating the yarn catching means in timed relation with the guides and the movements of the needles. The independent cam systems are located radially inwards of the conventional dial needle cam systems. With widely spaced feeds, a single yarn catch hook for service thereat is sufficient. But with closely spaced feeds there are two juxtaposed and differentiated yarn catch hooks, the independent cam systems in this case being so designed that the two hooks function at the alternate and the intervening feeds respectively.

3,681,942
APPARATUS FOR FEEDING AND TENSIONING FILLING THREADS TO A WARP KNITTING MACHINE

Rudolph G. Bassist, Lancaster, Pa., assignor to Travis Mills Corp., New York, N.Y., a part interest

Filed April 16, 1971, Ser. No. 134,596
Int. Cl. D04b 23/12
U.S. Cl. 66—84 **13 Claims**

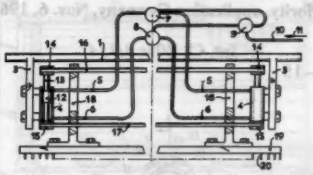


First and second spaced apart conveyors, extending toward the knitting instrumentalities of a knitting machine, each carry a plurality of thread clamping means. Guide means bring filling threads from filling thread supplies to the first conveyor where they are clamped. The guide means then moves to the second conveyor to pull filling threads from the supplies and draw them between the conveyors, the filling threads being clamped in the second conveyor. At some point during movement of the guide means, locking means lock the filling threads against further removal from the supplies so as to provide a predetermined tension to the filling threads which become clamped between the conveyors. Means may be provided for tensioning the filling threads as they are withdrawn from their supplies.

3,681,943
WARP GUIDE BAR MECHANISM

Augustin Perrier, 31 Rue Henon, Lyon, France

Filed March 5, 1970, Ser. No. 16,882
Claims priority, application France, March 6, 1969, 7906175
Int. Cl. D04b 23/00
U.S. Cl. 66—86 **6 Claims**

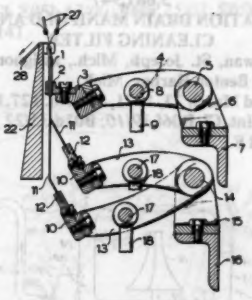


A control apparatus for use in a Raschel machine for effecting movements of the guide bar and comprising a pair of spaced bars which are bodily movable up and down relative to the sahft about which they oscillate; and on which the guide bar can slide with a reciprocating motion.

3,681,944
WARP KNITTING MACHINE

Ervin Peschl, Ceska near Brno; Frantisek Malasek, Sobesice near Brno, and Vladimir Kolar, Brno, all of Czechoslovakia, assignors to W. Schlafhorst & Co., Monchenoladbach, Germany and Vyzkuniny Ustav Pletarsky, Brno, Czechoslovakia, part interest to each

Filed Nov. 18, 1970, Ser. No. 90,492
Claims priority, application Czechoslovakia, Nov. 18, 1969, 7573/69
Int. Cl. D04b 23/00, 27/00
U.S. Cl. 66—86 **8 Claims**



In a warp knitting machine with bipartite knitting needles respectively having a hook part and a latch part displaceably mounted in the hook part, and provided with at least one needle bar for the hook parts of the knitting needles, there are included at least two entrainer bars for the latch parts, the entrainer bars being coordinated with the one needle bar, means operatively connecting a respective group of the latch parts to

each of the entrainer bars so that the latch parts are actuatable thereby respectively for opening and closing the respective knitting needles, all of the latch parts being actuatable concurrently by the entrainer bars together, and a displacement mechanism connected to each of said entrainer bars respectively for independently displacing the same so as to actuate the respective latch parts operatively connected thereto.

3,681,945

Patent Not Issued For This Number

3,681,946

DEVICE FOR THE TREATMENT OF ENDLESS TEXTILE MATERIAL LENGTHS

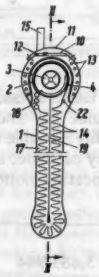
Heinz Fleissner, Frankfurt am Main, Germany, assignor to Vepa AG, Basel/Schweiz, Switzerland

Filed Nov. 6, 1970, Ser. No. 87,391

Claims priority, application Germany, Nov. 6, 1969, P 19 55 742.7

Int. Cl. B05c *3/134*

U.S. Cl. 68—15 **12 Claims**



The present disclosure is directed to an apparatus for the treatment of endless textile material lengths which comprises a container means adapted to contain a treatment liquor and composed of a conveying zone and a dwell zone, partition means dividing the dwell zone into two channels and a perforated drum means subjected to a suction draft rotatably disposed in the conveying zone in such a manner that it is adapted to receive the textile material from one of the channels and introduce it into the other of said channels.

3,681,947

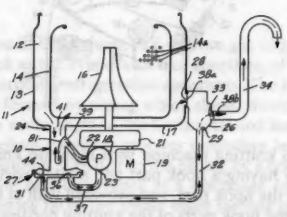
COMBINATION DRAIN MANIFOLD AND SELF-CLEANING FILTER

Richard L. Cowan, St. Joseph, Mich., assignor to Whirlpool Corporation, Benton Harbor, Mich.

Filed March 23, 1971, Ser. No. 127,179

Int. Cl. D06f *39/10;* **B01d** *35/22*

U.S. Cl. 68—18 F **8 Claims**



A combined drain manifold and lint filter assembly has a drain manifold which is connected directly to a drain port formed in a tub of an automatic washing machine, and the lowermost wall of the drain manifold is formed by the flexible wall of a self-cleaning diaphragm filter so that the static water head pressure from the tub acts on the filter diaphragm to keep it closed without a backup plate or springs. Fluid entering the drain manifold is directed downwardly, across a side of the diaphragm opposite the filtering chamber then upwardly to an exit port, thereby flushing the drain manifold of sand and other small particles while trapping larger items such as buttons. A portion of the drain manifold overlying a peripheral edge of the flexible diaphragm is configured to be flexible for preventing breakage in the event fluid freezes in the manifold.

3,681,948

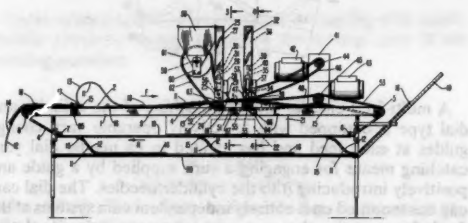
METHOD AND APPARATUS FOR DEFATTING PELTS

Wayne D. Naarup, Salisbury, Md., and Martin E. Turner, Berlin, Md., assignor to Regal Farms, Inc., Berlin, Md.

Filed Oct. 22, 1970, Ser. No. 82,909

Int. Cl. C14b *1/00*

U.S. Cl. 69—22 **26 Claims**



Process and apparatus for defatting animal pelts by applying selectively mechanical line pressure, e.g. roller pressure, across a longitudinally advancing animal pelt, e.g. across the width of a pair of longitudinally advancing superimposed substantially smooth protecting surfaces facing each other and having the animal pelt situated in covered relation therebetween, and squeezing and forcing gradually and incrementally the adhering fat rearwardly and away from the pelt during such advancing under the mechanical line pressure.

3,681,949

APPARATUS FOR THE CONTINUOUS WET-TREATMENT OF FILAMENT GROUPS

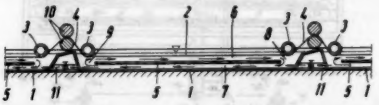
Heinz Fleissner, Egelsbach near Frankfurt am Main, Germany, assignor to Vepa AG, Basel/Schweiz, Switzerland

Filed Feb. 17, 1969, Ser. No. 799,843

Claims priority, application Germany, Feb. 16, 1968, P 17 10 478.8

Int. Cl. B05c *3/138*

U.S. Cl. 68—22 R **11 Claims**



The present disclosure is directed to a process and apparatus for the continuous wet-treatment of textile materials which comprises at least one treatment container adapted to receive a treatment liquid, guide roller means provided at least at the inlet and discharge end of the treatment container, said guide roller means at least partially immersed in the treatment liquid and adapted to convey the material being treated below the surface of the treatment liquid, and intermediate bottom

means which subdivides the treatment container into an upper treatment zone and a lower return flow zone, said zones communicating with each other at the inlet and discharge end of the treatment container.

3,681,950

APPARATUS FOR THE CONTINUOUS WET-TREATMENT OF TEXTILE MATERIAL

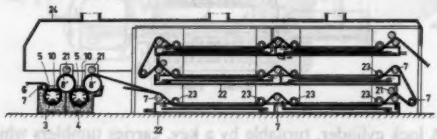
Heinz Fleissner, Engelsbach near Frankfurt, Germany, assignor to Vepa AG, Basel/Schweiz, Switzerland

Filed March 20, 1969, Ser. No. 808,931

Claims priority, application Germany, March 20, 1969, P 17 60 004.3; Feb. 25, 1969, P 19 09 357.3

Int. Cl. B05c *3/138*

U.S. Cl. 68—22 R **12 Claims**



The present disclosure is directed to a process and apparatus for the continuous wet-treatment of textile materials which comprises a container means containing a treatment liquid, inlet means for introducing the material to be treated to the container means, at least one permeable roller means rotatably disposed in the container means and at least partially submerged in the treatment liquid, at least one drainage means connected in series with respect to the roller means, said drainage means being provided with a guide roller means, and outlet means for removing the material from the container means.

3,681,951

PROCESS AND APPARATUS FOR TREATING FIBRES WITH FLUIDS

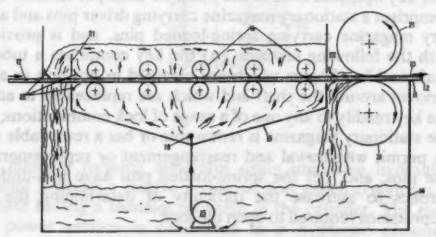
Malcolm Chaikin, 29 Martin Road, Centennial Park, New South Wales, and John Raymond McCracken, 80 Holmer Road, Kingsford, New South Wales, both of Australia

Filed June 15, 1970, Ser. No. 46,281

Claims priority, application Australia, June 23, 1969, 56892/69; June 23, 1969, 56891/69

Int. Cl. B05c *3/136*

U.S. Cl. 68—44 **9 Claims**



A method and apparatus for treating a layer of fibrous material with a liquid in operations such as the scouring of wool fibers, the fibers being arranged into a thin layer between porous conveyors and conveyed by them through a body of treating liquid, the layer being subjected to a series of nipping actions which cause liquid to flow along the layer of fibers, the flow of liquid through the layer in a direction normal to the plane of the layer being maintained. It is preferred that the nipping devices should be in the form of nipping members which have a surface arranged at an acute angle to the surface of one of the conveying members so as to define a wedge-shaped space, the arrangements of these members being such as to maintain a hydrodynamic pressure gradient across the layer of fibers thus promoting a uniform unidirectional flow of liquid through the fibers.

3,681,952

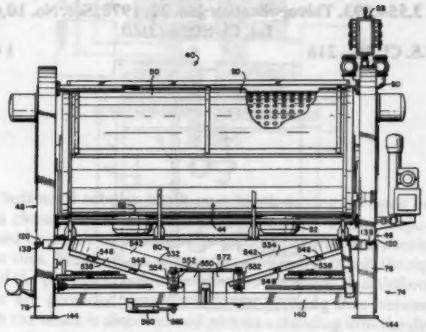
DRAIN STRUCTURE FOR A COMMERICAL LAUNDRY MACHINE

Alex Toth, Lincolnwood, Ill., assignor to Ellis Corporation, Chicago, Ill.

Division of Ser. No. 22,508, March 25, 1970, Pat. No. 3,613,406. This application July 28, 1971, Ser. No. 166,928

Int. Cl. D06f *39/08*

U.S. Cl. 68—208 **4 Claims**



A commercial laundry machine including a rotatable casing having dump valves for discharging fluid from the bottom thereof is provided with an improved drain structure. Movably mounted drain chutes serve to transfer discharged washing fluids from the casing to a rear floor gutter, and are moved out of the way to clear the region beneath the machine for unloading of laundry.

ERRATUM

For Class 69—22 see:
Patent No. 3,681,948

3,681,953

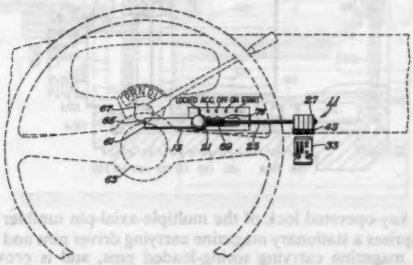
LOCK AND METHOD OF PRODUCTION THEREFOR

James C. Luttrall, DSR Box 106, Weatherford, Tex.

Filed Feb. 7, 1969, Ser. No. 797,389

Int. Cl. E05b *63/00;* **B60r** *25/02;* **E05b** *19/06*

U.S. Cl. 70—141 **24 Claims**



This specification discloses a lock characterized by employing a plurality of rods reciprocal within apertures of a body, the apertures being blocked by pins unless the pins are properly positioned by a key. When properly positioned, the

pins have an aperture which aligns with respective apertures in the body to allow the rods to move into the unlocked position. The matched key employs a combination of either elevations, or depressions, or both, to properly align apertures in the pins and the body. The lock is preferably spring loaded to the unlocked position such that it unlocks upon insertion of the key. Disclosed also are other specific aspects useful for a particular application of the lock; for example, whether used in a home or automobile. Also disclosed is a method of mass producing matched locks and keys.

3,681,954

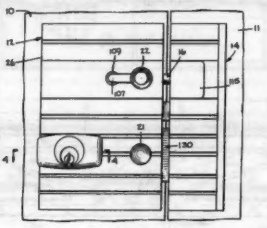
AUTOMATIC LOCKING SYSTEM

Paul Maddison Hawkins, Stillwater, Minn., assignor to General Alarm Corporation, New York, N.Y.

Division of Ser. No. 721,809, April 16, 1968, Pat. No. 3,554,593. This application Jan. 22, 1970, Ser. No. 10,677

Int. Cl. E05b *13/10*

U.S. Cl. 70—216 **1 Claim**



A security system for locking closure members and having a locking bolt adapted to be automatically projected to its locking position when the closure members are also in the locking position and having means for automatically deadlocking the locking bolt when it is in the locking position. Novel means is provided for locking the inside door knob against unauthorized rotation.

3,681,955

MULTIPLE-AXIAL-PIN TUMBLER LOCK

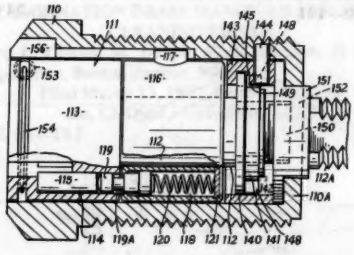
Ronald F. Sturgeon, 25 Linden Road, Bognor Regis, Sussex, England

Filed Dec. 3, 1968, Ser. No. 780,637

Claims priority, application Great Britain, Dec. 7, 1967, 55,660/67

Int. Cl. E05b *15/14, 27/08*

U.S. Cl. 70—363 **3 Claims**



A key-operated lock of the multiple-axial-pin tumbler type comprises a stationary magazine carrying driver pins and a rotary magazine carrying spring-loaded pins, and is provided with the following features: (a) the key comprises a tubular shaft and has fingers which are clamped in position in axial grooves around the shaft and which are replaceable to adapt the key readily to any one of a range of lock combinations; (b) the stationary magazine is removable or has a removable part to permit withdrawal and rearrangement or replacement of the pins; and, (c) the spring-loaded pins have non-uniform strokes to increase the difficulty of determining the pin depressions required to open the lock.

3,681,956

MIDDLE PLATE IN A CYLINDER LOCK

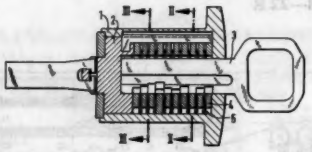
Armas Kalvero Niilola, Maasalvantie 16 B 8, Helsinki 71, Finland

Filed Nov. 12, 1970, Ser. No. 88,702

Claims priority, application Sweden, Nov. 17, 1969, 15729/1969

Int. Cl. E05b *29/00*

U.S. Cl. 70—366 **3 Claims**



A lock cylinder, turnable by a key, carries tumblers which support plates interleaved between the tumblers. The interleaved plates comprise outwardly pressed portions keeping the tumblers in place.

3,681,957

MULTIPLE-AXIAL-PIN TUMBLER LOCK

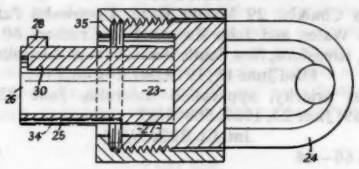
Ronald F. Sturgeon, 25 Linden Road, Bognor Regis, Sussex, England

Division of Ser. No. 780,637, Dec. 3, 1968. This application Dec. 16, 1970, Ser. No. 41,934

Claims priority, application Great Britain, Dec. 7, 1967, 55,660/67

Int. Cl. E05b *19/18*

U.S. Cl. 70—411 **4 Claims**



A key-operated lock of the multiple-axial-pin tumbler type comprises a stationary magazine carrying driver pins and a rotary magazine carrying spring-loaded pins, and is provided with the following features: (a) the key comprises a tubular shaft and has fingers which are clamped in position in axial grooves around the shaft and which are replaceable to adapt the key readily to any one of a range of lock combinations; (b) the stationary magazine is removable or has a removable part to permit withdrawal and rearrangement or replacement of the pins; and, (c) the spring-loaded pins have non-uniform strokes to increase the difficulty of determining the pin depressions required to open the lock.

3,681,958

HIGH PRESSURE FORMING PRESS

Aage Rasmussen, Stony Brook, N.Y., assignor to Grumman Aerospace Corporation, Bethpage, N.Y.

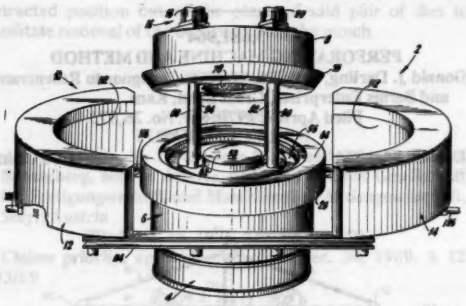
Filed Oct. 15, 1970, Ser. No. 80,911

Int. Cl. B21d *22/10*

U.S. Cl. 72—57 **5 Claims**

An apparatus and method for forming sheet metal. A head platen having a rubber insert and a lower piston casing which accommodates a piston having an anvil adapted to be aligned with the rubber insert are held together by a lock ring. A

hydraulic actuation system comprised of a plurality of pistons mounted on the head platen and the piston mounting the anvil



operate to impose a concentrated force to press a workpiece mounted on the anvil into the rubber insert.

3,681,959

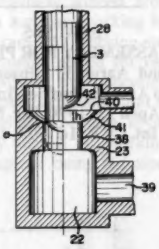
MATERIAL FORMING APPARATUS UTILIZING HYDRAULIC PRESSURE

Hiroshi Tominaga, Tokohama, and Masanobu Takamatsu, Yokohama, both of Japan, assignors to Tokyu Sharyo Seizo Kabushiki Kaisha, Yokohama-shi, Kanagawa-Ken, Japan

Division of Ser. No. 498,981, Oct. 20, 1965, Pat. No. 3,575,025. This application April 16, 1970, Ser. No. 33,125

Int. Cl. B21d *26/02*

U.S. Cl. 72—60 **4 Claims**



A material forming apparatus using impulsive hydraulic pressure includes a motive power section which comprises a cylinder having a hammer movable in the cylinder. The motive power section is connected to a hydraulic pressure developing section. The hydraulic pressure developing section includes a curved wall bounding a hydraulic chamber in which the impulsive hydraulic pressure is generated. The motive power includes a plunger movable in the motive power section and having a portion which extends into the hydraulic pressure developing section, and which has a curved end facing the curved wall. The hammer is impulsively movable in said motive power section in response to force applied against the plunger in order to displace it into the hydraulic pressure section for generating an impulsive hydraulic pressure. A working section communicated with the hydraulic pressure developing section and comprises a mold for the material to be worked.

3,681,960

METHOD AND APPARATUS FOR FORMING VALVE BODIES

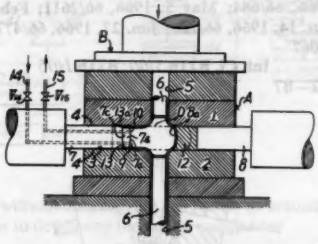
Toyotoshi Tadokoro, Osaka, Japan, assignor to Furubayashi Kogyo Kabushiki Kaisha, Osaka, Japan

Filed April 21, 1970, Ser. No. 30,443

Claims priority, application Japan, April 22, 1969, 44/37657; May 1, 1969, 44/34302

Int. Cl. B21d *26/04*

U.S. Cl. 72—61 **9 Claims**



A bottomed tubular blank or a blank having an open end and a closed end is formed into a valve body whose shape is defined by a pair of dies and the ends of pistons incorporated in the dies. Pressure oil is introduced into the blank through one of the pistons to bulge the blank to the shape thus defined. There are provided upper and lower pressing dies between which the blank is disposed and pistons extending into the dies in four directions, with the piston for pressing the opening of the blank being provided with an inlet for supplying the pressure oil into the blank and an outlet for discharging the pressure oil. When required, the blank is pressed by the dies for preliminary forming and then subjected to the hydraulic bulge forming.

3,681,961

EXTRUSION PRESS WITH A HYDRO-MECHANICAL ROTARY DRIVE FOR THE WORKING SPINDLE

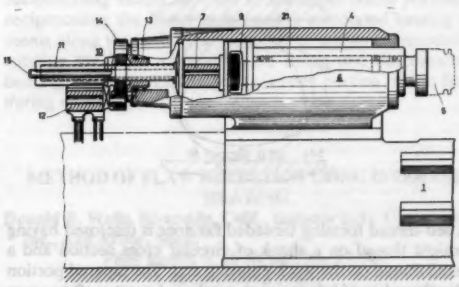
Just Sohlemann, and Gerhard Muller, both of Riemerling, Germany, assignors to Messerschmitt-Bolkow-Blohm Gesellschaft Mit Beschrankter Haftung, Munich, Germany

Filed March 26, 1970, Ser. No. 31,031

Claims priority, application Germany, April 1, 1969, P 19 16 708.9

Int. Cl. B21b *5/00*

U.S. Cl. 72—82 **1 Claim**



An extrusion press includes a hydro-mechanical rotary drive for driving the working spindle which is arranged inside the spindle sleeve and which drives through a coaxially arranged transmission directly on the working spindle. The feed system for moving the working spindle axially during a work-

ing stroke is arranged coaxially to the working spindle and it also comprises a hydro-mechanical rotary drive.

3,681,962
APPARATUS FOR ROLLING RINGS

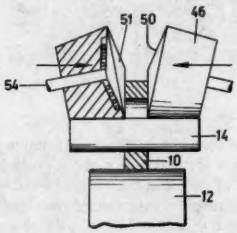
Jacob Marcovitch, Johannesburg, Republic of South Africa, assignor to Rotary Profile Anstalt, Vaduz, Liechtenstein

Continuation-in-part of Ser. No. 605,060, Dec. 27, 1966, abandoned. This application Dec. 1, 1969, Ser. No. 881,114

Claims priority, application Republic of South Africa, Jan. 4, 1966, 66/43; Jan. 10, 1966, 66/105; Jan. 14, 1966, 66/226; Feb. 7, 1966, 66/684; May 5, 1966, 66/2611; Feb. 16, 1966, 66/865; Jan. 14, 1966, 66/225; Jan. 27, 1966, 66/477; April 12, 1966, 66/2067

Int. Cl. B21b *5/00*; B21h *1/06*

U.S. Cl. 72—87 11 Claims



This invention relates to rolling of annular workpieces by means of apparatus comprising a pressure roller, a mandrel which squeezes the workpiece against the pressure roller and backing rollers on which the mandrel rolls in line contact. Either the backing rollers or the pressure roller can be formed in two parts which can be adjusted towards and away from each other, either before or during rolling.

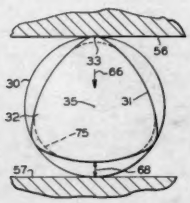
3,681,963
SELF-THREAD FORMING THREADED FASTENERS AND METHOD AND APPARATUS FOR MAKING THE SAME

Herman G. Muenchinger, South Dartmouth, Mass., assignor to Research Engineering & Manufacturing, Inc., New Bedford, Mass.

Filed Jan. 19, 1970, Ser. No. 3,985

Int. Cl. B21h *3/06*

U.S. Cl. 72—88 14 Claims



A self-thread forming threaded fastener is disclosed having a straight thread on a shank of circular cross section and a tapered thread on the work-entering end. The tapered portion of the thread is of lobular root, pitch and crest surface cross sections and which lobular configuration is continued, but to a diminishing extent, on the first few threads on the shank section immediately adjacent the tapered section.

The fastener is formed by rolling between thread-rolling dies a blank having a cylindrical shank of circular cross section, and an end section of arcuate lobular cross section including a tapered portion. The thread-rolling dies include a longitudinal edge portion which is adapted to engage the lobular end portion of the blank whereby at least the lobular tapered portion of the blank is intermittently deflected first in one direction and then in the opposite direction. Due to such deflections of the end of the blank, a lobular, tapered thread is produced on the tapered portion of the blank.

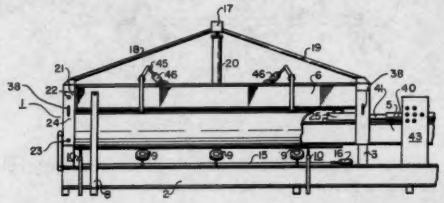
3,681,964
PERFORATING MACHINE AND METHOD

Donald J. Darling, Hutchinson, Kans., assignor to Rosencrantz and Bernis Enterprises, Great Bend, Kans.

Filed April 9, 1970, Ser. No. 26,873

Int. Cl. B21b *1/00*

U.S. Cl. 72—204 10 Claims



A method and machine for impressing a row of longitudinal perforations in a material such as a steel pipe. A female die engages one surface of the metal, and a cutter positioned on the other side cuts and forms the perforations as it is advanced longitudinally. The cutter has a rotatable head provided with a number of teeth that register with the die to cut and form the perforations as the cutter advances. The preferred embodiment includes ratchet means for shifting the material to a new position upon completion of a row of perforations.

ERRATUM

For Class 72—389 see:
Patent No. 3,681,994

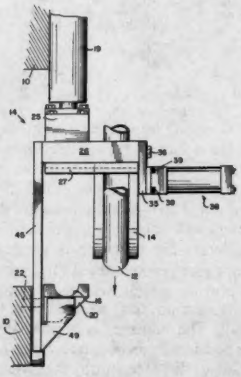
3,681,965
PUNCH ASSEMBLY FOR PIPE BENDER

Erwin D. King, and Aaron F. Gibson, Jr., both of Fayette, Ala., assignors to Arvin Industries, Inc., Columbus, Ind.

Filed April 13, 1970, Ser. No. 27,640

Int. Cl. B21d *7/02*, *45/00*

U.S. Cl. 72—389 4 Claims



A punch assembly mounted on a press having a cylinder provided with a ram reciprocally movable with respect to a

pair of cooperating dies for forming bends in pipe. The punch assembly is provided with a guide movable with said ram and supporting a slide having the punch mounted thereon. A second cylinder is carried from the guide and is provided with a ram for moving the slide and punch normal to the plane of movement of the press ram to dispose said punch in a retracted position out of the plane of said pair of dies to facilitate removal of the bent pipe from the punch.

3,681,966

FORGING MACHINE

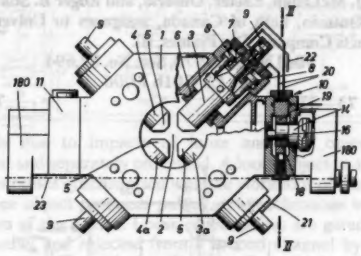
Bruno Kralowetz, St. Ulrich near Steyr, and Othmar Heimel, Behamberg, both of Austria, assignors to GFM Gesellschaft fur Fertigungstechnik und Maschinenbau Aktiengesellschaft, Steyr, Austria

Filed Dec. 16, 1970, Ser. No. 98,750

Claims priority, application Austria, Dec. 30, 1969, A 12 093/69

Int. Cl. B21j 7/28

U.S. Cl. 72—402 **4 Claims**



A forging machine is disclosed having two pairs of opposed rams uniformly and angularly spaced around a workpiece feeding axis. Each ram has two working hydraulic actuator pistons for moving the ram in a working stroke, and a single retracting hydraulic actuator piston for retracting the ram. Two pump units are provided, one opposite the other, on opposite side of the machine. Each pump unit services two rams, one from each of the two pairs of rams, in order that the rams may be simultaneously driven in working and retracting strokes to forge a workpiece being fed along the workpiece feeding axis.

3,681,967

BALANCING MACHINE AND METHOD FOR CALIBRATING THE SAME

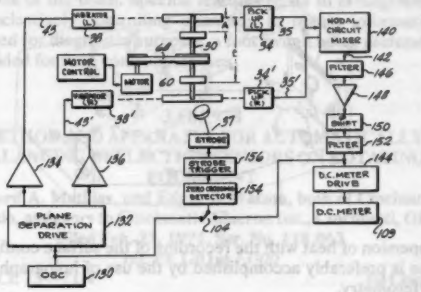
Gordon E. Hines, Ann Arbor, Mich., and Ronald W. Anderson, Champaign, Ill., assignors to Balance Technology, Inc., Ann Arbor, Mich.

Filed Feb. 24, 1970, Ser. No. 13,443

Int. Cl. G01m 1/22

U.S. Cl. 73—1 B **23 Claims**

A balancing machine of the soft suspension type wherein the part under test is supported by carriers that are free to translate or oscillate during a test operation. Vibrators are provided to oscillate the carriers during initial setup to calibrate electronic readout of pickups used to sense displacement of the carriers. The vibrators are driven by precise drive signals that can be proportioned to simulate unbalance at any correction plane. The pickups and the electronic circuits for processing the pickup signals can be calibrated during setup to provide a direct readout of the unbalance at any selected correction plane directly in either inch-ounces or ounces. The balancing machine is set up and calibrated for any given part



under test without rotating the part prior to actually running the machine to determine the actual unbalance.

3,681,968

Patent Not Issued For This Number

3,681,969

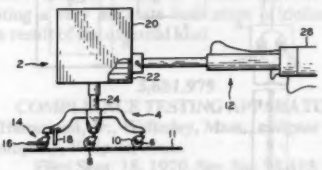
SURFACE TREATING APPARATUS

Donald M. McCord, Greenville, S.C., assignor to Phillips Fibers Corporation

Filed Jan. 29, 1971, Ser. No. 110,970

Int. Cl. G01n 3/56

U.S. Cl. 73—7 **7 Claims**



An apparatus having an upper and a lower frame rotatably connected one to the other, at least three rotatable bearing elements rotatably attached to the lower frame portion, and a reciprocating means attached to the upper frame portion for reciprocating the frame and rotating associated bearing elements along the surface to be tested. A means is provided for rotating the lower portion of the frame and the associated bearing elements relative to the upper portion of the frame during reciprocation of the frame.

3,681,970

METHOD OF FLAW DETECTION USING INTERNAL HEATING

Donald R. Wells, Riverside, Calif., assignor to G. C. Optronics, Inc., Ann Arbor, Mich.

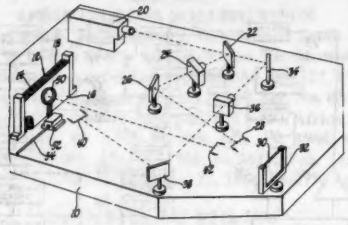
Filed March 9, 1970, Ser. No. 17,767

Int. Cl. G01n 25/00

U.S. Cl. 73—15.4 **9 Claims**

A method and apparatus are disclosed for nondestructive testing for subsurface flaws in a workpiece. The surface configuration of the workpiece is recorded and heat is induced in the interior of a discrete volume of the material. Then the surface configuration of the workpiece is compared during the dispersion of heat from the discrete volume with the recorded surface configuration to reveal differences as an indication of

a flaw. The heating of the interior material is accomplished by producing electrical currents therein as by induction heating. The comparison of the surface configuration during the



dispersion of heat with the recording of the surface configuration is preferably accomplished by the use of holographic interferometry.

3,681,971

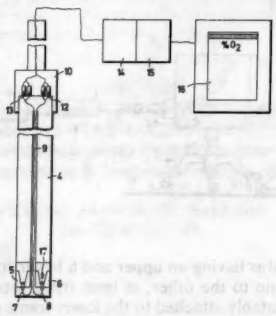
Patent Not Issued For This Number

3,681,972

PROCESS AND DEVICE FOR DETERMINING THE OXYGEN CONCENTRATION IN METAL MELTS

Bhaskar Chandra Mahanty, Karlsruhe, and Gustav Mahn, Wolfenbuttel, both of Germany, assignors to Salzgitter Hutenwerk Aktiengesellschaft, Salzgitter-Drutte, Germany

Filed June 8, 1970, Ser. No. 44,312
Int. Cl. G01n *1/12, 25/06, 31/12*
U.S. Cl. 73—19 **7 Claims**



The oxygen concentration in a metal melt, such as a steel melt, is determined by comparing the melting point temperature of a sample taken from the melt with the melting point temperature of the same metal but without any free oxygen, other impurities being taken into account. The difference is related to the oxygen concentration. This is preferably done by taking two samples from the melt, fixing the free oxygen in one of them by a reducing agent and determining the difference between the melting point temperatures of the treated and untreated samples.

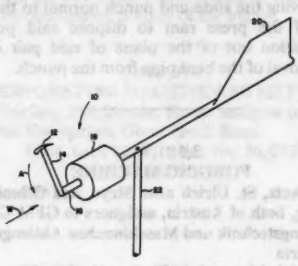
3,681,973

CENTRIFUGAL ROTATING PARTICLE SIZING APPARATUS

Gary R. Ludwig, East Amherst, N.Y., assignor to Cornell Aeronautical Laboratory, Inc., Buffalo, N.Y.

Filed Feb. 18, 1971, Ser. No. 116,582
Int. Cl. G01n *1/22*
U.S. Cl. 73—28 **10 Claims**

A particle sizing apparatus comprising a sampler mounted for rotation in a plane perpendicular to the wind direction having an entrance slot communicating with a hollow aerodynamically shaped chamber, the outer surface of which has a collection paper for collecting the particles along the



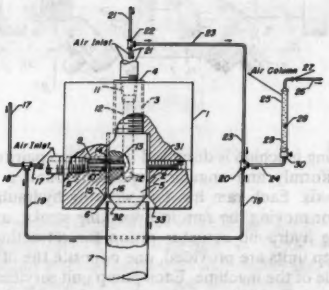
length thereof as they impinge thereagainst at various points determined by the trajectories the particles follow once they are within the chamber.

3,681,974

AIR GAUGE SYSTEM FOR TUBING WALLS

Donald J. McLellan, Exeter, Ontario, and Roger B. Stotts, London, Ontario, both of Canada, assignors to Universal Oil Products Company, Des Plaines, Ill.

Filed Nov. 9, 1970, Ser. No. 87,694
Int. Cl. G01b *13/06*
U.S. Cl. 73—37.5 **7 Claims**



An air gauge device for tubing is provided by having nozzles built into a special housing with a circular slot means. The slot for a tubing end is formed by a specially fabricated cylinder member being inserted concentrically within a sized hole in the housing. One nozzle discharges from the housing wall to one side of the slot while the opposing nozzle discharges from the internal cylinder side of the slot whereby air pressure will impinge upon each side of the wall of tubing inserted into the slot means. The connection of a calibrated pressure gauge or flow meter across the pressure supply lines to the internal opposing nozzles provides variation readings in wall thickness down to the order of 0.00025 inch.

3,681,975

METHOD OF EVALUATING OIL-SOLUBLE DISPERSANTS

Kanji Majima, Wakayama; Kaichi Izumi, Tokyo, and Takao Watanabe, Tokyo, all of Japan, assignors to Kao Soap Co., Ltd., Tokyo, Japan

Filed May 11, 1970, Ser. No. 36,483
Claims priority, application Japan, May 13, 1969, 44/36719
Int. Cl. G01n *33/26*
U.S. Cl. 73—64 **14 Claims**

A method of evaluating oil-soluble dispersants, in which a dispersion medium and a sample of dispersant to be evaluated

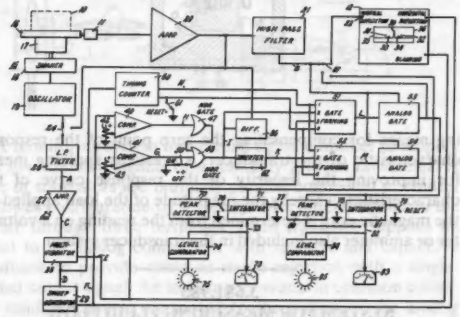
are mixed an certain proportions with a controlled sludge or an acidic artificial sludge specifically prepared having a constant proportion of insoluble matter content to dispersion medium, the mixture is then allowed to stand for a certain period of time and thereafter the state of the artificial sludge is observed to evaluate the dispersant.

3,681,976

FREE AND LOOSE OBJECT DETECTION SYSTEM

Max W. Schulz, Jr., Scotia, N.Y., assignor to General Electric Company

Filed June 29, 1970, Ser. No. 50,544
Int. Cl. G01h *1/00*
U.S. Cl. 73—67 **7 Claims**



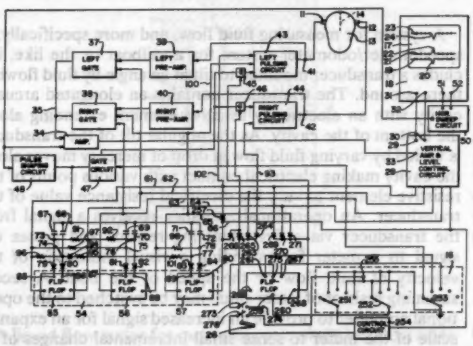
Signals due to impacts of loose and free objects are separated and separately processed. A loose object in a device produces pulses synchronized with the vibrations of the device and a free object produces pulses non-synchronous with the vibrations of the device. Loose object pulses are gated into a first channel and rejected from a second channel by gating pulses synchronous with the vibrations. Free object pulses are gated into the second channel by gating pulses synchronous with the vibrations.

3,681,977

ULTRASONIC ENCEPHALOGRAPHIC SYSTEM

John A. Wendt, Park Ridge, and Peter J. Rosauer, Mt. Prospect, both of Ill., assignors to Champion Spark Plug Company, Toledo, Ohio

Filed Aug. 2, 1965, Ser. No. 476,321
Int. Cl. G01n *29/00*
U.S. Cl. 73—67.9 **6 Claims**



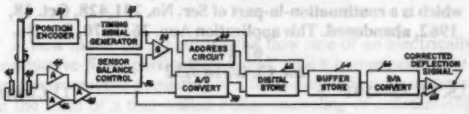
Ultrasonic encephalographic system in which left and right transmitting-receiving transducers are positioned on opposite sides of the head and in which three separate A-scan traces are produceable on an oscilloscope screen, the first being produceable by transmission and reception by the left transducer, the second being produceable by transmission and reception by the right transducer and the third being produceable by transmission from one transducer and reception by the other. The traces can be readily compared to accurately locate the midline of the brain. Specific features relate to arrangements for selectively controlling operation to obtain information desired for diagnostic purposes, a foot switch being preferably provided for such control purposes.

3,681,978

METHOD AND APPARATUS FOR AUTOMATICALLY BALANCING DEFLECTION SENSORS ON ROTATING EQUIPMENT

Richard A. Mathias, and Edgar J. Watson, both of Cincinnati, Ohio, assignors to Cincinnati Milacron Inc., Cincinnati, Ohio

Filed Feb. 23, 1971, Ser. No. 118,063
Int. Cl. G01m *13/00*
U.S. Cl. 73—71.4 **10 Claims**



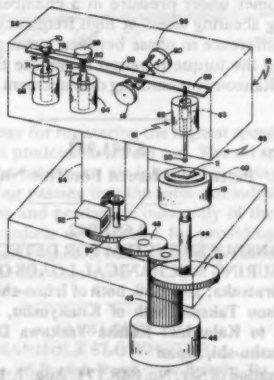
A method and apparatus for automatically balancing a periodic deflection signal being produced by deflection sensors which are applied to a rotating body. A device is provided for dividing each period of the deflection signal into a number of timing periods. During each timing period, while the body is idling, a digital signal representing the deflection signal is generated and input into storage. During successive corresponding periods of the deflection signal, when an external load is applied to the body, the digital signal is retrieved from storage and converted into an analogue noise signal. The noise signal is subtracted from the deflection signal thus balancing the sensors and producing a corrected deflection signal representing a very accurate indication of deflection of the body as a result of the external load.

3,681,979

COMPLIANCE TESTING APPARATUS

Fred H. Hammond, Jr., Wellesley, Mass., assignor to The Kendall Company, Walpole, Mass.

Filed Sept. 18, 1970, Ser. No. 73,415
Int. Cl. G01n *3/42*
U.S. Cl. 73—81 **6 Claims**



Compliance testing apparatus having a movable test specimen support and a movable indenter probe comprising a balance with variable weight means and displacement measuring means. Actuating means are provided for changing the balance weight. The displacement measuring means carries the indenter probe and provides an electrical displacement

signal of the probe from a predetermined position. Driving means are provided for moving the support toward the probe for contact of the test specimen therewith. The apparatus is responsive to movement of the displacement measuring means movable element to the predetermined position to stop movement of the support toward said probe, to change the balance weight to load the indenter probe for movement thereof into said test specimen away from said predetermined position, and preferably to start a timing means, the latter being connected to indicating means to stop the indicating means after the predetermined time has elapsed to indicate the displacement of the probe from the predetermined position and hence the compliance of the test specimen.

3,681,980

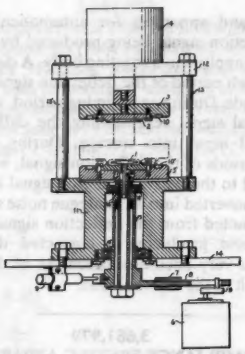
OSCILLATING DISK RHEOMETER

George E. Decker, McLean, Va., assignor to Monsanto Company, St. Louis, Mo.

Continuation of Ser. No. 282,527, May 6, 1963, abandoned, which is a continuation-in-part of Ser. No. 231,428, Oct. 18, 1962, abandoned. This application Aug. 26, 1970, Ser. No. 67,279

Int. Cl. G01n *3/32*

U.S. Cl. 73—101 **11 Claims**



Method and apparatus for determining the rheological properties of an elastomer which method comprises subjecting a sample of the elastomer enclosed under pressure in a non-circular chamber, the base of which is star-shaped or rectangular, to oscillating shearing stress and measuring the stress. Dynamic properties are determined by enclosing a sample of the elastomer under pressure in a chamber, subjecting it to oscillating shearing stress at high frequency to provide measurable difference in phase between stress and displacement, measuring the torque required to impose the shearing stress and simultaneously measuring displacement.

3,681,981

Patent Not Issued For This Number

3,681,982

TRANSDUCER SYSTEM FOR DETECTING AND MEASURING MECHANICAL LOADS OR STRESSES

Michio Hiratsuka; Jiro Ishii, both of Irima-shi; Tadahiko Goto, and Atsuo Takeda, both of Kitakyushu, all of Japan, assignors to Kabushiki Kaisha Yaskawa Denki Seisakusho, Kitakyushu-shi, Japan

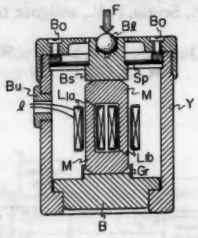
Continuation of Ser. No. 848,171, Aug. 7, 1969, abandoned. This application June 15, 1971, Ser. No. 153,411

Claims priority, application Japan, Sept. 8, 1968, 43/56927; Sept. 26, 1968, 43/70347

Int. Cl. G01s *1/12*

U.S. Cl. 73—141 A **8 Claims**

An apparatus and a transducer system for detecting and measuring mechanical stress applied on the transducer composed of at least one magnetic core of laminated silicon steel sheet construction, a plurality of coils wound on the magnetic core, a constant voltage a.c. source connected to these coils, pick-up means for picking up any variation caused in the current flowing through the coils due to the application of a load or stress on the magnetic core, a rectifying means for rectifying the thus picked-up variation in the current, a compensat-



ing means for compensating the zero point of the response characteristic of the transducer, a prestress applying means for improving the linearity of the response curve of the characteristics, whereby the magnitude of the load applied on the magnetic core is determined from the reading on a voltmeter or ammeter also included in the transducer system.

3,681,983

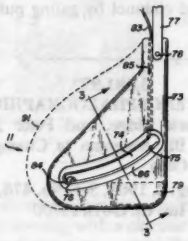
SYSTEM FOR MEASURING FLUID FLOW

William Alexander, 784 Dixon Way, Los Altos, Calif.

Filed May 11, 1971, Ser. No. 142,203

Int. Cl. G01c *23/00*

U.S. Cl. 73—186 **13 Claims**



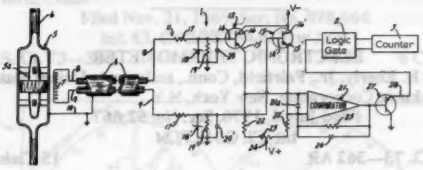
A system for measuring fluid flow, and more specifically, a speedometer/odometer system for a sailboat or the like, includes a transducer mounted to tilt at an angle by fluid flowing there around. The transducer contains an elongated arcuate cavity with an electrically resistive element extending along the bottom of the cavity. As the angular tilt of the transducer is varied by varying fluid flow, a drop of mercury moves along the cavity making electrical contact with various points of the resistive element to vary the electrical resistance value of the transducer. An operational amplifier receives a signal from the transducer via a first summing resistor and passes the signal to a meter for providing a visual indication of the velocity of fluid flow or the speed of the boat. A second summing resistor of lesser value may be switched to the operational amplifier to provide an increased signal for an expanded scale of the meter to sense small incremental changes of the boat's speed. A third summing resistor connects the operational amplifier to a potentiometer for generating an adjustable input signal to center the meter for the expanded scale readings. An integrating amplifier receives the signal from the transducer for advancing an odometer indicator in steps or increments such that a motor driving the odometer indicator

will conserve power from the voltage source which may be small batteries.

3,681,984
SMALL SIGNAL AMPLIFIER PARTICULARLY FOR FLOW METER MONITORING

Charles J. Tur, Mequon, Wis., assignor to A. O. Smith Corporation, Milwaukee, Wis.

Filed May 21, 1970, Ser. No. 39,352
Int. Cl. G01f
U.S. Cl. 73—194 R **14 Claims**



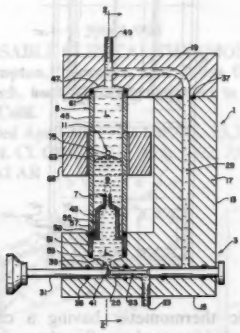
A monitoring system has a small signal amplifier to amplify the low millivolt signals of a remotely located flowmeter. A pair of transistors are mutually parallel connected in emitter follower configuration by a variable bias potentiometer to the meter through three terminals. Each transistor supplies an input to an analog comparator with resistive and capacitive feedback to provide common mode rejection with a single-ended output signal. An isolating transistor in common collector configuration is connected to the output of the analog comparator for impedance transformation.

The transistors are selectively connected to receive either a pair of balanced incoming signals or an unbalanced signal. A reference signal is applied as an input to one of the parallel connected transistors in unbalanced operation.

3,681,985
LIQUID FLOW METER

Neilson Rudd, Mt. Vernon, Ill., assignor to Geo-Engineering Laboratories, Inc., Mt. Vernon, Ill.

Filed Nov. 9, 1970, Ser. No. 87,989
Int. Cl. G01f *1/00*
U.S. Cl. 73—194 E **7 Claims**

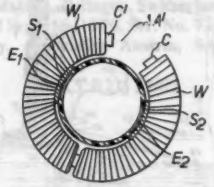


A liquid flow meter for measuring extremely low flow rates, in which the rate of flow of a liquid is measured by having the flow occur in discrete droplets from a droplet-forming tube into a column of mercury, the formation of a droplet causing the column of mercury to rise and interrupt a beam of light to a photocell for actuating a counter to totalize the number of droplets.

3,681,986
FLUID FLOW METERS

Derek Gerald Wyatt, Oxford, England, assignor to National Research Development Corporation, London, England

Continuation of Ser. No. 822,204, May 6, 1969. This application April 30, 1971, Ser. No. 139,272
Int. Cl. G01p *5/08*
U.S. Cl. 73—194 EM **6 Claims**

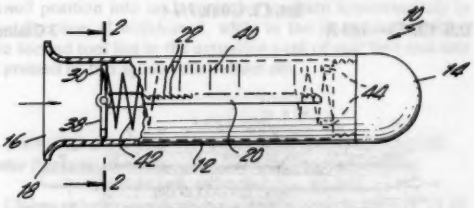


A flow meter for measuring the flow rate of an electrically conductive fluid, particularly blood, which comprises a tube, an electromagnet consisting of a ferro-magnetic core material in the form of a thin-walled collar encircling or substantially encircling the tube and windings on the core, the windings being wound transversely around the core in a uniform manner but being oppositely directed on diametrically opposed halves of the core, and a plurality of electrodes adapted to be in electrical contact with the following fluid and so arranged that in operation an induced potential will exist between the electrodes located in each half of the electromagnet when the fluid flows through the tube and a current is passed through the windings.

3,681,987
AIR ACTUATED SKI SPEEDOMETER

Asa P. Ruskin, 865 West End Avenue, New York, N.Y.

Filed Aug. 21, 1970, Ser. No. 65,889
Int. Cl. G01p *5/02*
U.S. Cl. 73—228 **5 Claims**



A ski speedometer for registering the highest speed attained by a skier during a predetermined ski run. The ski speedometer employs a tube having an air inlet and a spring pressed plate actuated by air passing into the tube. An indicator is attached to the plate and positioned outwardly of the tube for cooperating with indicia on the tube for providing a direct readout of the actual highest speed attained by the skier, until the ski speedometer has been reset.

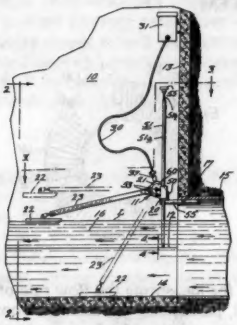
3,681,988
MANHOLE FLOWMETER

Carrell S. McNulty, 35 Beulah Road, New Britain, Pa.

Filed Aug. 20, 1971, Ser. No. 173,541
Int. Cl. G01f *1/00, 23/10*
U.S. Cl. 73—194 R **9 Claims**

Apparatus is provided to measure changes in the elevation of a stream of fluid flowing in an open channel for use in computing the rate and/or quantity of fluid flow. The apparatus

comprises a hollow cylindrical housing mounted by means of a bracket assembly to pivot on an axis transverse to the stream and an arm connected at one end of the housing and mounting at its other end a float which rides upon the surface of the fluid. The float and arm cause the housing to pivot in response



to changes in elevation of the fluid, and a variable resistor fixedly mounted inside the housing cooperates with a pendulous mass mounted on the shaft of the resistor to produce an electrical signal when the housing pivots about the shaft and the mass. The signal from the resistor is fed into recording and computation instrumentation to yield the desired readout.

3,681,989

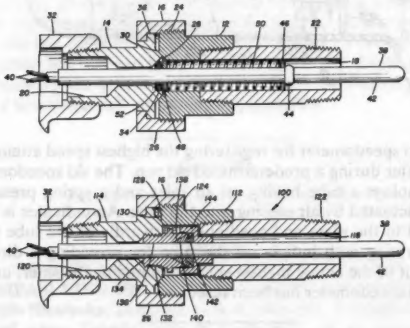
Patent Not Issued For This Number

3,681,990

TEMPERATURE SENSING ASSEMBLY

Charles E. Barrett, Fullerton, and David R. Jacobson, San Gabriel, both of Calif., assignors to Dresser Industries, Inc., Dallas, Tex.

Filed June 29, 1970, Ser. No. 50,764
Int. Cl. G01k 1/14
U.S. Cl. 73—343 R **3 Claims**



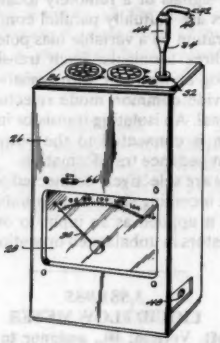
An electrical temperature sensing assembly for detecting the temperature of a remotely located device, such as a bearing, which is operating in a cooling medium. The sensing assembly includes two releasably connected body members. One of the body members is connected to the apparatus containing the bearing and the other is connected with an electrical conduit. A union joins the two body members so that it is not necessary to rotate one body member relative to the other to remove the temperature sensing assembly from the apparatus. Furthermore, it is not necessary to disconnect the electrical conductor from the temperature probe which is contained within the body members when disassembling the temperature sensing assembly. In one embodiment, a spring encircles the temperature probe so that the probe is resiliently biased into intimate engagement with a bearing race or other device wherein the temperature is to be determined. In another embodiment, the temperature probe is rigidly secured and sealed in the body member and, yet, can be removed from the temperature sensing assembly without disconnecting the electrical circuitry connecting the probe with read-out apparatus.

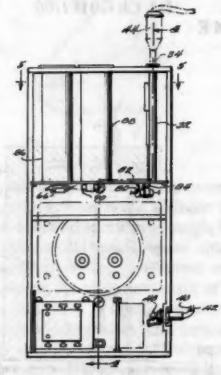
3,681,991

ELECTRONIC THERMOMETER

David H. Eberly, Jr., Fairfield, Conn., assignor to United States Banknote Corporation, New York, N.Y.

Filed July 6, 1970, Ser. No. 52,667
Int. Cl. G01k 7/24
U.S. Cl. 73—362 AR **15 Claims**





An electronic thermometer having a casing, a probe removably mounted in a probe well in the casing, a thermistor mounted in the top of the probe, a resistance bridge with the thermistor connected as one of the bridge resistances so that the bridge output indicates the temperature of the thermistor, a meter responsive to the bridge output for displaying the temperature of the thermistor, and at least one, and preferably two wells in the casing for each holding a plurality of disposable probe covers in each well, the covers in one well preferably being of a different color from the covers in the other well. In one embodiment, a first resistor is mounted in

the casing adjacent the probe well for heating the thermistor so that the temperature at that location can be quickly determined and a second resistor is mounted adjacent the probe cover wells for heating the probe covers in these wells. In another embodiment two probes are provided, one for taking human temperature orally and the other for taking human temperatures rectally.

3,681,992

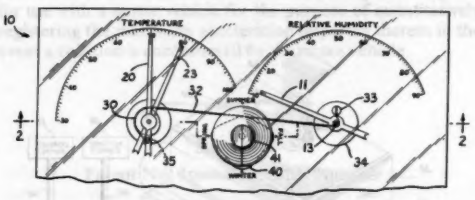
WEATHER INSTRUMENT FOR INDICATING COMFORT TEMPERATURE AND RELATIVE HUMIDITY VALUES

Robert D. Cofoid, Tonica, and Clarence J. Goodwin, Peru, both of Ill., assignors to General Time Corporation, Stamford, Conn.

Filed Nov. 21, 1969, Ser. No. 878,664

Int. Cl. G01n *19/10*; G01w *1/06*

U.S. Cl. 73—336 **6 Claims**



A weather instrument including a hygrometer and thermometer, and means operatively associated therewith for providing an indication of either the temperature or relative humidity required to maintain a predetermined temperature humidity index. In one embodiment, a cam-filament arrangement responds to the sensed ambient temperature to automatically provide an indication of the relative humidity required to maintain a predetermined temperature humidity index, and this indication is displayed in conjunction with the indication of the ambient relative humidity. In another embodiment, a cam-filament arrangement responds to the sensed relative humidity to automatically provide an indication of the temperature required to maintain a predetermined temperature humidity index, and this indication is displayed in conjunction with the indication of ambient temperature. A cam means is provided for adjusting the cam-filament system to provide indications of the temperature or relative humidity required to maintain different predetermined temperature humidity values at different seasons of the year.

3,681,993

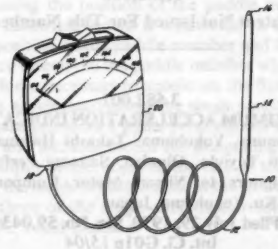
DISPOSABLE CLINICAL THERMOMETER

Joseph M. Campton, Torrance, and Julius G. Hammerslag, Newport Beach, both of Calif., assignors to Sensitron, Inc., Costa Mesa, Calif.

Filed April 30, 1970, Ser. No. 33,278

Int. Cl. G01k *7/22*; H01c *1/02*, *7/04*

U.S. Cl. 73—362 AR **17 Claims**



A disposable temperature sensing unit, suitable for use with a temperature indicating unit as a clinical thermometer, in which a thermistor is connected to the probe end of a unitarily formed strand and probe which includes electrical conductors with a plug connected to the conductors and to the free end of the strand at the other end of the unit, along with a process for making the temperature sensing unit and the electric plug, are disclosed.

3,681,994

BEND-SHAPING DEVICE

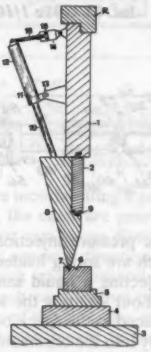
Vaclav Zbornik, Oftringen, Switzerland, assignor to Hammerle A/G Maschinenfabrik, Zofingen, Switzerland

Filed Sept. 16, 1970, Ser. No. 72,775

Claims priority, application Austria, Sept. 22, 1969, A 8974/69

Int. Cl. B21j *13/02*

U.S. Cl. 72—389 **6 Claims**



A bend-shaping device with a movable ram and a work table in which a tool holder is fixed both on the ram and on the work table and in which the tool holder fixed to the table has a bottom-die with two working positions with which a first tool, fixed directly in the tool holder of the ram, and a second tool, displaceably connected to the tool holder, coact interchangeably. The tool holder of said second tool is mounted on the tool holder of said first tool displacebly from the interposed position into an inoperative position approximately in the direction of withdrawal, while in the interposed position the second tool lies in the actuation path of said first tool and is pressed by this against the bottom die.

3,681,995

DEVICES FOR THE TRANSFER OF SAMPLE LIQUID

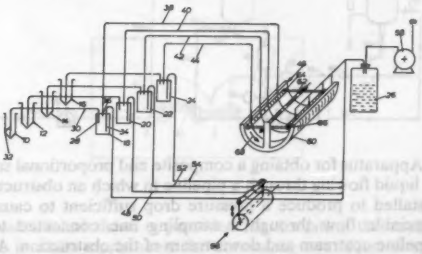
Peter Paatzsch, Kneippweg la, 777 Uberlingen, Germany

Filed June 8, 1970, Ser. No. 44,267

Claims priority, application Germany, June 9, 1969, P 19 29 169.1

Int. Cl. G01n *1/14*

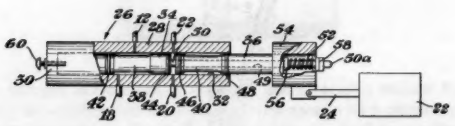
U.S. Cl. 73—421 B **10 Claims**



In an automated testing apparatus of the type in which a series individual liquid samples in separate sample vessels are

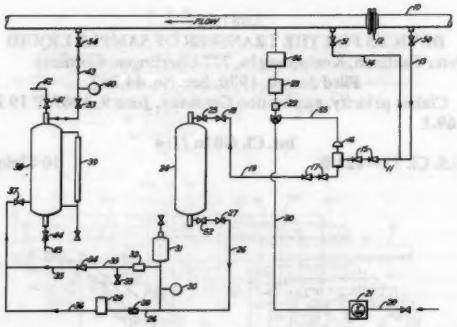
transferred into individual sample cells, a positive displacement pump is utilized for this transfer, rather than temporary utilization of a large vacuum source. Use of such a pump avoids frothing and the consequent formation of bubbles (which may lead to errors in photometric measurements of the samples in the cells). Additionally a plurality of liquid samples may be transferred by utilizing a single multi-channel positive displacement pump (e.g., of the hose type) even though the samples have substantially different viscosity. A conventional large vacuum source is preferrably still used to empty the sample cells after testing, to insure complete evacuation of the sample material from the cells and the hoses.

3,681,996
LIQUID SAMPLE VALVE
Michael C. Crist, 125 Wisteria, Lake Jackson, Tex.
Filed July 10, 1970, Ser. No. 53,836
Int. Cl. G01n *1/10*
U.S. Cl. 73—422 R **6 Claims**



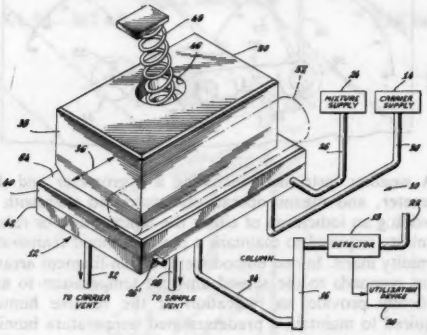
A small hydraulic pressure injection valve having spaced apart plungers which are spring loaded with respect to each other for use in injecting a liquid sample into a chromatographic column without awaiting the action of a carrier flow gas. The sample, placed in the space between the plungers, is injected immediately into the chromatographic column as the plungers advance and are forced together. There is no problem of evaporation of the sample, as the flow path to the column is flushed as a new sample is loaded into the valve.

3,681,997
COMPOSITE PIPELINE SAMPLER
Paul V. Allen, and Edward W. McAllister, both of Houston, Tex., assignors to Gulf Refining Company, Houston, Tex.
Filed March 16, 1971, Ser. No. 124,763
Int. Cl. G01n *1/14*
U.S. Cl. 73—422 TC **6 Claims**



Apparatus for obtaing a composite and proportional sample of liquid flowing through a pipeline in which an obstruction is installed to produce a pressure drop sufficient to cause appreciable flow through a sampling line connected to the pipeline upstream and downstream of the obstruction. A sampler pump connected into the sampling line periodically displaces a predetermined portion of the liquid flowing through the pipeline into a sample container maintained full of liquid and at a pressure enough higher than the vapor pressure of the most volatile component present in the product to be sampled to prevent vaporization of the volatile components of the liquid sampled. An accumulator in the line from the sample container to a displacement liquid reservoir protects the sample container from drops in pressure that might cause vaporization of the sample, and a bypass and rupture plug assembly protects the sample container from excessive pressure.

3,681,998
SAMPLE VALVE FOR CHROMATOGRAPHIC APPARATUS
Edwin L. Karas, Sharon; David S. Lee, North Easton, and Robert A. Vanslette, Medfield, all of Mass., assignors to The Foxboro Company, Foxboro, Mass.
Filed June 2, 1969, Ser. No. 829,576
Int. Cl. G01n *1/10*; F16k *25/00*
U.S. Cl. 73—422 GC **17 Claims**



Chromatographic apparatus is described wherein the improvement comprises a sample valve including slidably engaged members formed of a hard, wear-resistant alumina lapped to a high degree of flatness. These valve members are adapted to be molded using relatively inexpensive techniques. The engaged surfaces of the valve present cooperating ports and cavities which are adapted, when the valve members are shifted from one position to another, to inject a fixed amount of a sample mixture into a column. The valve surfaces also are formed with grooves carrying a flow of carrier to aid in isolating the injection ports from adjacent sample ports.

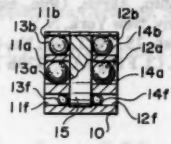
3,681,999
Patent Not Issued For This Number

3,682,000
Patent Not Issued For This Number

3,682,001
MAXIMUM ACCELERATION INDICATOR
Takuya Kitamura, Yokohama; Takashi Haruna, Yokosuka, and Minoru Toyoda, Ohmiya, Saitama Perfecture, all of Japan, assignors to Nissan Motor Company, Limited, Kanagawa-Ku, Yokohama, Japan
Filed July 29, 1970, Ser. No. 59,043
Int. Cl. G01p *15/04*
U.S. Cl. 73—492 **7 Claims**

A maximum acceleration indicator having a plurality of steel balls which are retained by a magnet or magnets and

which are forced, when subjected to a sudden and violent acceleration or deceleration, to depart from the magnet or magnets selectively independence upon the magnitude of the ac-



celeration or deceleration, the indicator being advantageous for use with a motor vehicle for the purpose of quantitatively registering the maximum acceleration imparted thereto in the event a collision is encountered by the motor vehicle.

3,682,002

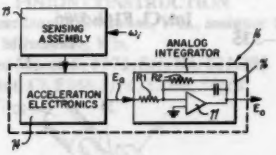
Patent Not Issued For This Number

3,682,003

FLUID ROTOR ANGULAR RATE SENSOR AND THREE-AXIS ANGULAR RATE SENSOR UTILIZING THE SMAE

Bradley B. Sage, Pleasant Hill, and Heino Kase, Walnut Creek, both of Calif., assignors to Systron-Donner Corporation, Concord, Calif.

Filed May 7, 1969, Ser. No. 822,369
Int. Cl. G01p *3/44, 7/00*
U.S. Cl. 73—503 **5 Claims**



Fluid rotor angular rate sensor with a single sensitive axis having means forming a substantially continuous passageway and having a fluid mass in the passage serving as a fluid rotor. A paddle member is disposed in the passageway and inhibits movement of the fluid rotor in the passage. Means is for provided for sensing the position of the paddle member in the passageway. Electrical means is connected to the means for sensing the position of the paddle member and for applying a restoring force directly to the paddle member which is proportional to the force necessary to accelerate the fluid rotor as the rate sensor is accelerated about the single sensitive axis. The electrical means produces a signal proportional to the angular acceleration and includes means for integrating the signal to provide an output proportional to the rate of turn of the rate sensor about the single sensitive axis. In the three-axis angular rate sensor, three of the single axis angular rate sensors are mounted on X, Y and Z axes.

3,682,004

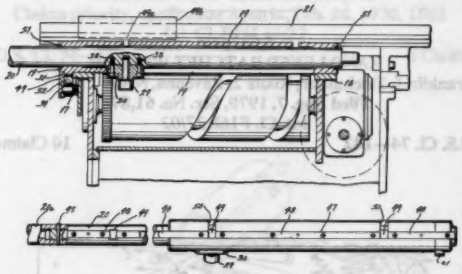
Patent Not Issued For This Number

3,682,005

DOUBLE CAM DRIVE

Paul A. Fantz, St. Louis County, Mo., assignor to UMC Industries, Inc.

Filed March 30, 1970, Ser. No. 23,543
Int. Cl. F16h *25/12*
U.S. Cl. 74—58 **4 Claims**



In a double cam drive incorporating a pair of cams arranged parallel to each other, the cams are geared to each other so that a rotating of the first cam in one direction effects rotation of the second cam in an opposite direction; means to be driven includes a follower which may alternately be disposed in the camming grooves of each cam, so that the disposition of the follower in the grooves of the first cam may effect a longitudinal shifting of the driven means in one direction, with a disposition of the follower in the camming grooves of the second cam causing a movement of the driven means in the opposite direction. This double cam drive may be used in conjunction with an inline machining device, whereby the driving means may comprise the transfer bar of said device, with its connected cam follower being arranged within the camming grooves of the first cam to effect the longitudinal shifting of said transfer bar and associated work supporting pallets in one direction, and then pivoting said transfer bar and its follower to effect a locating of said follower in the camming grooves of the second cam to provide for the movement of said transfer bar in an opposite direction.

3,682,006

MECHANICAL DRIVE

Joseph Westermaier, Geretsried, and Paul Bamberg, Pforzheim, both of Germany, assignors to International Standard Electric Corporation, New York, N.Y.

Filed Sept. 17, 1970, Ser. No. 72,952
Int. Cl. F16h *9/00*
U.S. Cl. 74—89.2 **2 Claims**

A mechanical drive is provided for actuating the tuning means in radio equipments for converting a uniform rotary movement into a non-uniform rotary movement with the aid of camplates. The two camplates of almost the same shape and size are arranged paraxially next to each other, the face surfaces thereof almost touch each other, and said camplates are

in connection with one another via a tape which, upon actuation of the drive shaft, extends from the circumference of one camplate to the circumference of the other camplate. Both the driving shaft and the driven shaft are resiliently braced so that the tape in every position of the drive is fully applied to said camplates.

3,682,007

Patent Not Issued For This Number

3,682,008

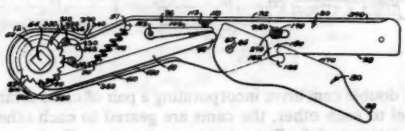
HAND LEVER RATCHET WRENCH

Franklin J. Teichmeier, Route 2, Ravenna, Nebr.

Filed Aug. 7, 1970, Ser. No. 61,878

Int. Cl. F16h *27/02*

U.S. Cl. 74—142 **10 Claims**



A ratchet wrench of the type having a lever movable toward and away from a handle operating a rotor with teeth disposed at a remote point on the handle, the wrench handle having deep recesses therein and having a shank portion extending at an angle with respect to e the remainder of the handle.

3,682,009

Patent Not Issued For This Number

3,682,010

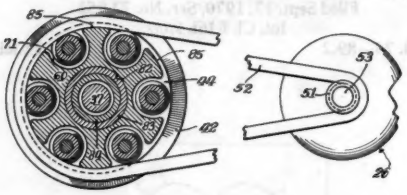
PULLEY CONSTRUCTION

Joseph F. Brooks, and Harold W. Schaefer, both of Bloomington, Ill., assignors to National Union Electric Corporation, Stamford, Conn.

Filed April 29, 1970, Ser. No. 32,844

Int. Cl. F16h *55/36*

U.S. Cl. 74—230.01 **12 Claims**



A pulley for use in a belt drive assembly. The outer surface of the pulley is divided into high friction portions which are in frictional engagement with the belt and low friction portions where the belt has little or no driving engagement with the pulley. The effective or belt-engaging areas of the high and low friction portions are proportioned to obtain a driving relationship with the belt under normal load conditions but to slip under overload conditions.

3,682,011

Patent Not Issued For This Number

3,682,012

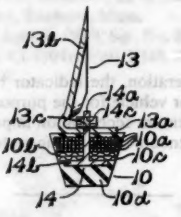
V-BELT AND METHOD OF MAKING SAME

James C. Blankenship, Akron, Ohio, assignor to The B. F. Goodrich Company, New York, N.Y.

Filed Feb. 25, 1971, Ser. No. 118,831

Int. Cl. F16g *1/00*; B29h *7/22*

U.S. Cl. 74—231 R **6 Claims**



An endless V-belt of elastomeric material having a plurality of longitudinally spaced preferably T-shaped lug members embedded in the belt with portions of the lug extending radially outwardly of the belt and being adapted for attachment thereto. The method of making the belt includes applying layers of elastomeric material and reinforcing cords over a building drum to form an inverted belt carcass and then forming apertures in the carcass for receiving the lug members before completing fabrication and vulcanizing of the belt.

3,682,013

GEAR CHANGE MECHANISM

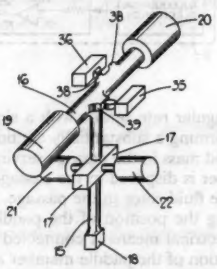
John Harrison Asbery, 87 Oakington Manor Drive, Wembley, Middlesex, England

Filed March 4, 1971, Ser. No. 121,103

Claims priority, application Great Britain, March 7, 1970, 11,038/70

Int. Cl. F16h *5/06*

U.S. Cl. 74—335 **9 Claims**

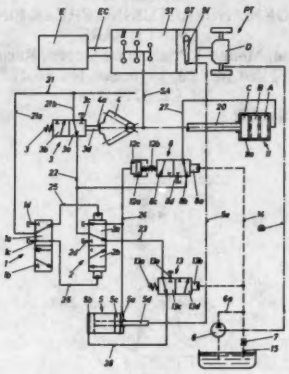


Gear change mechanism for a vehicle multi speed gearbox includes a driver operable lever movable within a gate, there being associated with the lever a disc. The disc is provided with two pairs of projections with which are associated baulk devices respectively, and these devices are operated so as to prevent movement of the lever into the neutral or gear engaged position until the selector mechanism of the gearbox has moved to the appropriate position. This provides an indication to the driver particularly in systems where the gearbox is remote from the driver, that the selector mechanism of the gearbox is in a particular position.

3,682,014
DOWN-SHIFTING TRANSMISSION LOCK

Alfred Magg, and Friedrich Schreiner, both of Friedrichshafen, Germany, assignors to Zahnradfabrik Friedrichshafen Aktiengesellschaft, Friedrichshafen, Germany

Filed Sept. 14, 1970, Ser. No. 71,924
Claims priority, application Germany, Sept. 13, 1969, P 19 46 496.1
Int. Cl. F16h 5/42; B60k 21/00
U.S. Cl. 74—336 15 Claims

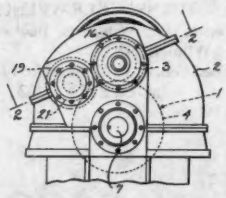


A fluid-control transmission lock is provided to prevent unwanted downshifting of a multiple-speed transmission and especially a servocontrol or power-assist transmission. The lock is speed-responsive and prevents, for example, the spontaneous downshifting from one speed range to another or from a higher gear ratio within a particular range to an impermissibly lower gear ratio within that range, in accordance with the vehicle speed.

3,682,015
PINION CONSTRUCTION

William S. Richardson, Milwaukee, Wis., assignor to The Falk Corporation, Milwaukee, Wis.

Filed March 5, 1971, Ser. No. 121,382
Int. Cl. F16h 3/14, 57/00, 55/18
U.S. Cl. 74—377 7 Claims



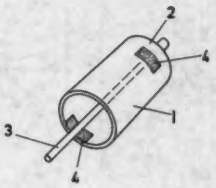
A pinion construction comprising a major toothed portion, a minor toothed portion and a shaft wherein there is a torsionally resilient driving means between the minor toothed portion and the shaft, and the teeth on the minor toothed portion are thicker than the teeth on the major toothed portion. A pinion of this construction may be used in a reversing gear drive to provide a reversing pinion which will not vibrate or rattle when it is idling during forward drive operation of the gear drive by virtue of tuning the natural frequency of the reverse gear branch to avoid torsional vibration resonancies.

3,682,016
Patent Not Issued For This Number

3,682,017
BALANCED CYLINDRICAL COIL FOR AN ELECTRICAL MACHINE

Jurgen Mayer, Sachseln, Switzerland, assignor to Interelectric AG, Sachseln, Switzerland

Filed Feb. 19, 1971, Ser. No. 116,945
Claims priority, application Austria, Feb. 20, 1970, 1583
Int. Cl. F16f 15/22
U.S. Cl. 74—573 8 Claims

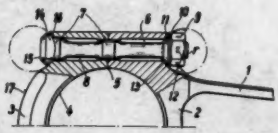


An ironless cylindrical coil-rotor for electrical machines which is balanced by attached weights is described. These weights consist of foil strips which are fastened to the surface of the turns of the coil-rotor and are at least partially embedded in the interspaces of the coil turns in order to achieve a flat structure of the balanced coil-rotor and a strong anchorage of the foil strips to the coil-rotor. The foil strips are made of a plastically deformable material.

3,682,018
CONNECTING ROD, ESPECIALLY FORKED CONNECTING ROD FOR INTERNAL COMBUSTION ENGINES

Ferdinand K. Piech, Stuttgart-Nord, and Hans Mezger, Ludwigsburg, both of Germany, assignors to Firma Dr. Ing, h.c.F. Porsche KG, Porschestrasse, Germany

Filed Nov. 25, 1970, Ser. No. 92,693
Claims priority, application Germany, Dec. 11, 1969, P 19 62 116.0
Int. Cl. F16c 9/00
U.S. Cl. 74—579 E 7 Claims

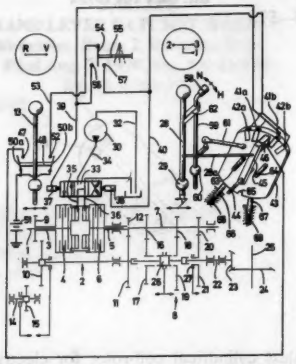


A connecting rod, especially a forked connecting rod for internal combustion engines, comprising at least a connecting rod foot and a connecting rod bearing cap connected to one another by tension elements or by tension elements and intermediate members. The tension elements and/or the intermediate members associated therewith support themselves with concave support surfaces in corresponding concave counter-surfaces in the connecting rod foot and/or the connecting rod bearing cap.

3,682,019
METHOD OF AND DEVICE FOR CONTROLLING A MULTI-STAGE CHANGE GEAR TRANSMISSION

Manfred Hoyer, Bergisch Gladbach-Schildgen; Helmut Welke, and Johann Ubban, both of Cologne, all of Germany, assignors to Klockner-Humboldt Aktiengesellschaft, Cologne-Deutz, Germany

Filed Oct. 12, 1970, Ser. No. 79,989
Claims priority, application Germany, Oct. 11, 1969, P 19 51 428.4
Int. Cl. F16h *3/02, 3/34, 3/08*
U.S. Cl. 74—745 16 Claims

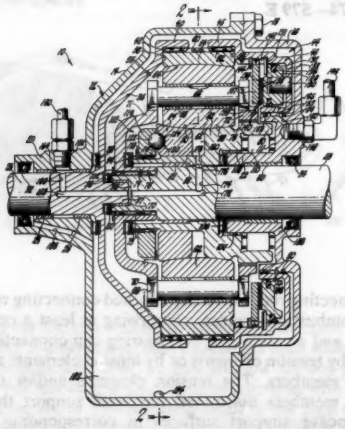


A multi-stage change gear transmission having a main group of gear sets which can be made selectively effective and serially arranged therewith is a power flow stage consisting of parallel flow paths of respectively different transmission ratios and each including a friction clutch with the clutches adapted to be made alternately effective. The clutches provide for subdivision of the change in drive ratio when shifting from one gear set to the next. Also disclosed are control systems for controlling the gear sets and the friction clutches.

3,682,020
TRACTION-DRIVE TRANSMISSION

Milton H. Scheiter, Bloomfield Hills, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Oct. 20, 1970, Ser. No. 82,364
Int. Cl. F16h *15/56, 57/10*
U.S. Cl. 74—772 2 Claims

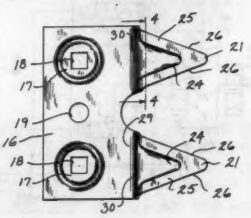


A transmission including input and output shafts, a traction-drive type planetary unit having a ring member driven by the input shaft, planet pinions rotatably supported on a carrier which drives the output shaft, one of a pair of split sun members freely mounted on the output shaft, the other sun member freely mounted on a cylindrical hub extending from the first sun member, axial loader means for moving the freely mounted sun member as required to load contacting surfaces between the planetary components in response to torque loads on the output shaft, a one-way brake for grounding the sun members to produce a predetermined output speed reduction, and a friction clutch for interconnecting the carrier and ring members for direct drive between output and input shafts.

3,682,021
METHOD OF MANUFACTURING SHEAR FINGERS FOR SICKLE BARS

Joseph Haban, Mound & Marquette Streets, Racine, Wis.

Filed July 20, 1970, Ser. No. 56,427
Int. Cl. B21k *21/00*
U.S. Cl. 76—101 R 2 Claims



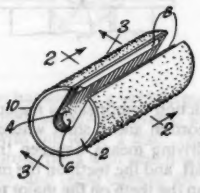
Pointed shear fingers are formed, preferably in multiples, from a flat metal plate which is blanked out to the required outline. The blank is formed in a die which offsets the projecting finger portions and simultaneously creates a convexity on the bottom surface bordered by angled edges or bevels, the forming also producing a concavity in the top of each finger, leaving a flat V-shaped marginal portion which is ground in a single operation to provide shearing edges in conjunction with the formed bevels of the bottom side. Shear fingers are separated by clean-out recesses which are formed in the blanking operation.

3,682,022
Patent Not Issued For This Number

3,682,023
TURNBUCKLE WRENCH

Henry E. Greene, Jr., Wilmette, Ill., assignor to Waldon Devices, Inc., Wilmette, Ill.

Filed Feb. 8, 1971, Ser. No. 113,569
Int. Cl. B25b *13/02*
U.S. Cl. 81—119 12 Claims

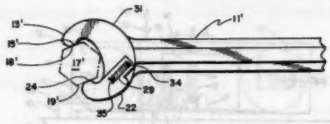


This application discloses a turnbuckle wrench comprising an elongated slotted body. The link of the turnbuckle is fitted within the slot and the wrench rotated to tighten or loosen the turnbuckle. Retaining elements hold the wrench on the turnbuckle.

3,682,024
OPEN END TWO POINT CONTACT WRENCH

Herman A. Myers, R.D. #1, Box 125, Lake Lynn, Pa.

Filed Dec. 4, 1970, Ser. No. 95,149
Int. Cl. B25b 13/12
U.S. Cl. 81—129 2 Claims

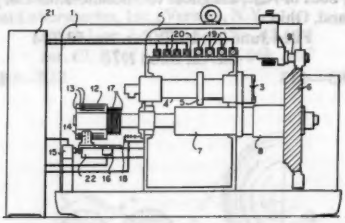


An open end wrench which contacts two faces of a polygonal headed fastener at substantially the midpoints of the faces. A handle terminates in a head having two spaced jaws connected through a concave arcuate surface, each jaw terminating in a rounded contacting surface. Both jaws may be rigid or one jaw may be movable to give a ratcheting effect to the wrench. The concavity of the arcuate surface aids in positioning the wrench so that the jaws contact the midpoints of the faces of the fastener head.

3,682,025
METHOD AND DEVICE FOR REGULATING A CAM-CONTROLLED MACHINE TOOL

Franz Reiners, Post Bergl Erkelenz-Land, and Georg Walk, Rheydt, both of Germany, assignors to A. Monforts, Monchengladbach, Germany

Filed July 8, 1969, Ser. No. 839,912
Claims priority, application Germany, July 9, 1968, P 17 52 737.6
Int. Cl. B23b 1/00
U.S. Cl. 82—1 C 6 Claims



Method of regulating a cam-controlled machine tool, especially a turret lathe with a working spindle for a workpiece and a turret adjustable to various angular settings and in the longitudinal direction thereof, which includes effecting an adjustment of the axial end portion of the turret that is superimposed on the regulating movement.

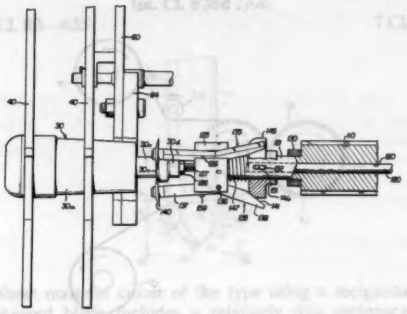
3,682,026
METHOD AND APPARATUS FOR TRIMMING BLOW MOLDED PLASTIC ARTICLES

Donald H. Criss, and Robert F. Kontz, both of Toledo, Ohio, assignors to Owens-Illinois, Inc.

Filed June 15, 1970, Ser. No. 46,243
Int. Cl. B23b 3/04, 5/14
U.S. Cl. 82—75 1 Claim

This invention relates to a cutting apparatus for removing integral molding flash from a plastic article, such as flash from the neck of a blow molded bottle. Such flash is necessarily formed during the molding operation and projects axially beyond the desired neck opening of a narrow-neck bottle, for example.

The specific cutting means includes a plurality of levers medially pivoted on a support element which is advanced to a given distance from the desired line of cut, the support element being rotatable and the levers rotating with the element about an axis aligned with the flash axis. Each such lever carries a cutter at its flash-adjacent end, and cam means contact the remote end of each lever. Upon movement of the cam

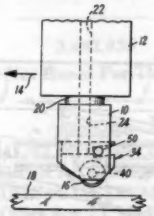


toward the flash, the levers are pivoted to contact the cutters with the flash, which is thereby severed. The cams continue to retain the cutters in contact with the flash as the support element is withdrawn to remove the severed flash from the severing location.

3,682,027
GLASS CUTTER

Thomas A. Insolio; Richard M. Guzowski, both of Bristol, and Robert A. Steinkamp, Middletown, all of Conn., assignors to The Fletcher-Terry Company, Forestville, Conn.

Filed Dec. 21, 1970, Ser. No. 100,161
Int. Cl. B26d 3/08
U.S. Cl. 83—12 6 Claims



Two constructions for a glass cutter are disclosed, and each comprises an insert with an axle for rotatably supporting a glass cutting wheel, a holder having a slot for removably receiving the insert. The holder is mounted to a cutting head of the type used for traversing a glass sheet, and the holder slot opens downwardly and forwardly for receiving the insert. In one version the insert has an inclined cam slot for receiving a pin in the holder, which pin extends across the holder slot to wedge the insert in place. In the other version the insert carries the pin, and the holder defines the cam slot for achieving the same end result.

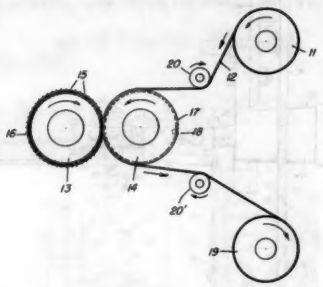
3,682,028
HIGHLY PERMEABLE THERMOPLASTIC FILM PERFORATING

William J. Clayton, Fairport, and Charles D. Keyser, Gorham, both of N.Y., assignors to Mobil Oil Corporation

Filed June 18, 1970, Ser. No. 47,407
Int. Cl. B26f 1/24
U.S. Cl. 83—30 4 Claims

The present invention relates to highly permeable film products and a method for the production of such products

comprising continuously passing relatively unpermeable, unperforated film stock through the nip of a pair of counter-rotating rollers. One of the rollers, i.e. a perforating roller, is provided around the circumference thereof, with a plurality of relatively dull needles or brads which serve to puncture the film as it passes through the nip formed by the perforating

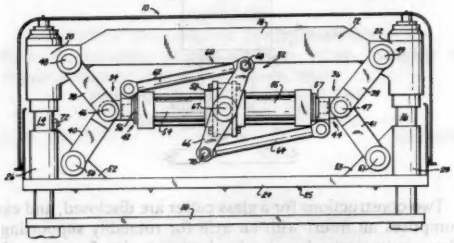


roller and a second back-up roller. As the film is being perforated it is firmly anchored and supported in a transverse direction by both the back-up roller and a resilient elastomeric material positioned around the periphery of the perforating roller, whereby efficient and positive film perforation is achieved at high film throughput rates.

3,682,029
BALANCED AND DOUBLE ACTION CUTTING APPARATUS

Edgar Haas, New York, N.Y., and Edward Kottsieper, Dresden Mills, Maine, assignors to Herman Schwabe Inc., Brooklyn, N.Y.

Filed April 13, 1970, Ser. No. 27,812
Int. Cl. B26d 5/18
U.S. Cl. 83—69 **15 Claims**

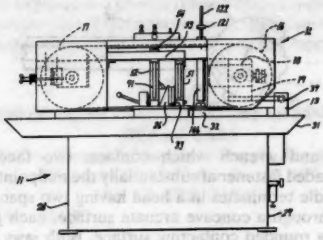


An apparatus for cutting sheet materials comprises a support frame for supporting the material to be worked and a cutting tool operatively movably connected to the support frame and effective to move from a retracted position to a cutting position. Means are provided to drive the cutting tool without interruption in one continuous cutting cycle from a fully retracted position to a cutting position, then to an intermediate position between the cutting and retracted positions, then back to a cutting position substantially immediately, and thereafter to the fully retracted position. This is accomplished by a driving mechanism comprising conventional toggle arms driven by a piston which moves from a withdrawn position to a fully extended position and back to the withdrawn position during the cutting cycle. The toggle arms are driven past their position of alignment twice during the movement of the piston and this is effective to reciprocally drive the cutting tool twice into cutting position during a single cycle. As a result, the material is quickly cut at the same location twice in succession, thereby ensuring a complete and accurate severing action.

3,682,030
PIVOTAL ARM BAND SAW

Gerald R. Harris, Livermore, Calif.

Filed Nov. 4, 1970, Ser. No. 86,732
Int. Cl. B26d 1/46
U.S. Cl. 83—201.04 **14 Claims**

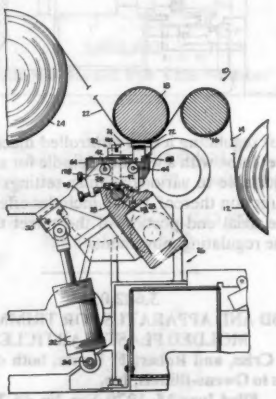


A band saw having a pivotal arm supported for articulation on both sides of the saw blade and preferably above the surface upon which the work is to be cut is disclosed. The band saw includes a frusto-conical drive wheel and means for guiding the saw blade in slip condition on said drive wheel. Also disclosed are guide means carried by the pivoted arm and formed to direct coolant on the saw blade as well as impart a positive camber to the blade. The saw is provided with a fluid activated controlling means for raising and lowering the pivotal arm which includes a combined gas-liquid system in which the flow rates of the gas and liquid may be pre-selected to control the rate of descent of the arm.

3,682,031
REWINDING APPARATUS

Gerrit Degelleke, Parsippany, and Robert E. Bush, Morris Plains, both of N.J., assignors to Midland-Ross Corporation, Cleveland, Ohio

Filed June 29, 1970, Ser. No. 50,784
Int. Cl. B26d 1/10
U.S. Cl. 83—433 **14 Claims**



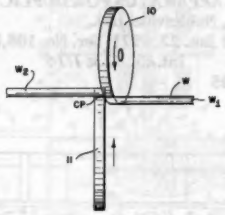
This invention relates to rewind machines having a main frame, a web supply roll, rewind roll means, a horizontal slideway, a backup roll and a plurality of slitting assemblies adjustably mounted on the slideway adjacent the backup roll, each of the slitting assemblies being characterized by a cutting element, apparatus for adjusting the vertical position of the cutting element, vernier apparatus for adjusting the lateral position of the cutting element and apparatus for oscillating the cutting element.

3,682,032

SLITTER WITH SHARPNESS RETENTION CAPABILITY

John D. Pfeiffer, Downingtown, Pa., assignor to Beloit Corporation, Beloit, Wis.

Continuation-in-part of Ser. No. 835,407, June 23, 1969. This application Dec. 16, 1969, Ser. No. 885,553
Int. Cl. B26d *1/28*
U.S. Cl. 83—496 16 Claims



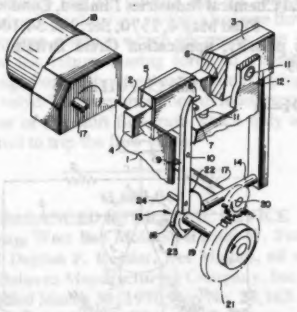
A shear type slitter for a moving web of material, comprising a pair of disc-shaped slitter members which overlap slightly and are toed toward the oncoming sheet. Each member includes a thin lip which projects laterally from the disc and engages the lip of the other member to cut the web. The lips are so shaped that their intial sharpness is substantially maintained over a relatively long period of time, notwithstanding wear of material from the surface of the lips.

3,682,033

DISAPPEARING PUNCH

John H. Lanahan, Whitesboro, N.Y., assignor to Mohawk Industrial Laboratories, Inc., Vernon, N.Y.

Filed June 2, 1970, Ser. No. 42,614
Int. Cl. B26f *1/04, 1/12*; G06k *1/02*
U.S. Cl. 83—522 7 Claims



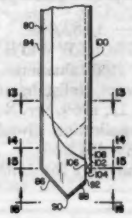
The invention relates to a punching device for punching notches in the edge of a card or the like. The punch is mounted in a housing and is moveable from a retracted position within the housing to an operating position to punch a notch in the edge of a card adjacent an outside surface of the housing. The punch may comprise a member which pivots downwardly from the retracted position to the operating position over an upper edge of the card.

3,682,034

CUTTER BLADE AND GUIDE CONSTRUCTION FOR A SHEET MATERIAL CUTTER WITH A RECIPROCATING CANTILEVERED BLADE

David R. Pearl, West Hartford, Conn., assignor to Gerber Garment Technology, East Hartford, Conn.

Filed Oct. 5, 1970, Ser. No. 77,844
Int. Cl. B26d *1/06*
U.S. Cl. 83—635 7 Claims



A sheet material cutter of the type using a reciprocating cantilevered blade includes a relatively thin reciprocating blade and a guide or sheath that surrounds the blade rearwardly of its forward cutting edge to provide extra rigidity for the blade reducing lateral and rearward deflection by the forces imposed thereon during a cutting operation. In addition to a generally vertical forward cutting edge for cutting sheet material as the blade is moved in the plane thereof, the blade also includes, at its lower end, a generally downwardly facing cutting edge permitting the blade to cut in a plunging fashion by moving it and the guide generally perpendicularly into the material being cut. The blade and guide are so constructed as to allow them to cut, during plunging movement, a slit in the sheet material equal to approximately the combined front to rear dimension of the blade and guide so that as the blade and guide are plunged into the material being cut the slit made thereby will readily accommodate the blade and the guide without seriously displacing the material or causing other problems.

3,682,035

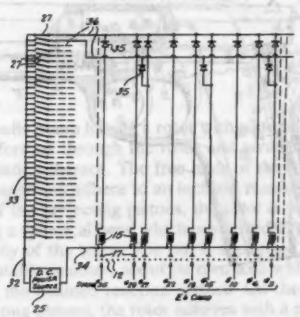
Patent Not Issued For This Number

3,682,036

DIGITAL/ELECTRON LOGIC AND ELECTROMECHANICAL CONTROL FOR STRINGED MUSICAL INSTRUMENTS

Cecil A. Null, Post Office Box 23, Madison, Tenn., and Robert H. Klinger, Sr., 6316 Whitesburg Drive, Hunstville, Ala.

Filed June 18, 1971, Ser. No. 154,365
Int. Cl. G10d *3/00*
U.S. Cl. 84—317 10 Claims



A stringed musical instrument having individual solenoids controlling dampers for the various strings. Chords can be

played by energizing selected solenoids. Push-button switches are employed in conjunction with digital logic circuits to provide rapid selection of combinations of solenoids to be simultaneously energized, to thereby provide rapid selection of chords.

3,682,037

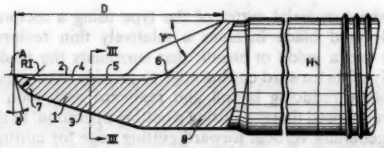
Patent Not Issued For This Number

3,682,038

SELF-TAPPING SCREW WITH DRILL MEANS

Sixten H. Lejdegard, Hallstahammar, Sweden, assignor to Bultfabriks Aktiebolaget, Hallstahammar, Sweden

Filed Oct. 22, 1969, Ser. No. 868,419
Claims priority, application Sweden, Oct. 23, 1968, 14347/68; Oct. 17, 1969, 4312/69
Int. Cl. F16b *25/00*
U.S. Cl. 85—41 12 Claims



Disclosed herein is a self-tapping screw having a drill tip for boring an opening in a work piece, wherein the drill tip comprises an axial section of cone attached at its base portion to the shank of the screw. The conical section has a cutting edge along a conical surface thereof, such cutting edge being disposed in a plane which includes the axis of the screw shank, and a chute extending from a position adjacent the cutting edge to a position at the screw shank so that chips of the workpiece are carried out of the bored opening along the path of the chute.

3,682,039

Patent Not Issued For This Number

3,682,040

EN BLOC FIRE CONTROL GROUP FOR A PISTOL

Robert E. Roy, East Haven, Conn., assignor to Colt's Inc., Hartford, Conn.

Filed Oct. 8, 1969, Ser. No. 864,609
Int. Cl. F41c *19/14*
U.S. Cl. 89—132 8 Claims

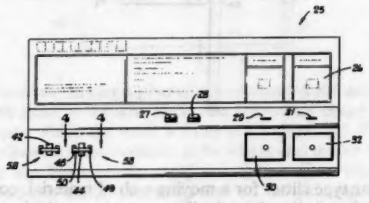
The pistol of this invention incorporates a fire control group of an en bloc type removably mounted in a receiver and having a housing extremity engaging the receiver at a location remote from a hammer pivot axis, a slide reciprocably mounted on the receiver, and a barrel operated by the slide and having a downwardly projecting lug, the lug being received for limited captured movement in the frame between longitudinally spaced vertically offset limit positions, and a pair of camming pins longitudinally spaced apart in the receiver to extend laterally across the path of movement of the barrel lug and serving both to guide and stop barrel movement relative to the slide in timed relation to its movements.

3,682,041

METHOD AND APPARATUS FOR DUPLICATING A KEY

Ted Essig, R.R. 3, Noblesville, Ind.

Filed Jan. 22, 1971, Ser. No. 108,894
Int. Cl. B23c *1/16*
U.S. Cl. 90—13.05 9 Claims



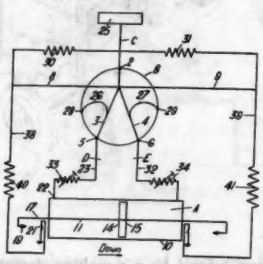
A method and apparatus for duplicating a key from a universal key blank. A plurality of tracer rods are mounted to a carriage on either side of a slot receiving a key to be duplicated. The tracer rods are coupled to a plurality of rotatable cutting tools mounted on either side of a second slot receiving a universal key blank. The tracer rods and cutting tools are held by a carriage movable the length and width of the key. Means are provided to rotate the cutting tools and to move the carriage. The carriage is housed within a cabinet having a pair of holders fixedly secured to its front wall. Each holder receives the universal key blank and the key to be duplicated and is operable to position the key blank and key respectively between the tracers and cutting tools.

3,682,042

RECIPROCATORY FLUID MOTOR

Thomas William Bain, Stockton-on-Tees, England, assignor to Imperial Chemical Industries Limited, London, England

Filed May 4, 1970, Ser. No. 34,100
Claims priority, application Great Britain, May 7, 1969, 23,375/69
Int. Cl. F01l *25/06*
U.S. Cl. 91—3 6 Claims

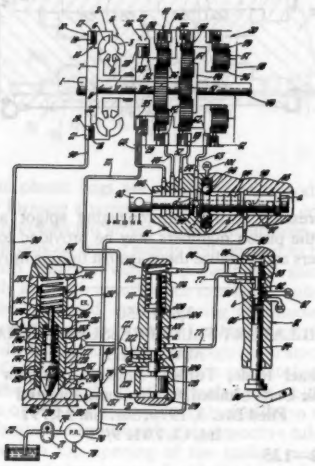


A reciprocatory motor, suitable for driving reciprocatory stirrers, for example, those used in laboratory melting-point apparatus, and driven by a working gas is controlled using a so-called bistable fluidic amplifier.

3,682,043
FLOW CONTROL SYSTEM

Keith A. Bailey, Speedway, and Jerry R. Marlow, Greenwood, both of Ind., assignors to General Motors Corporation, Detroit, Mich.

Filed March 23, 1970, Ser. No. 21,950
Int. Cl. B60k *21/00*; F15b *11/00*
U.S. Cl. 91—412 8 Claims



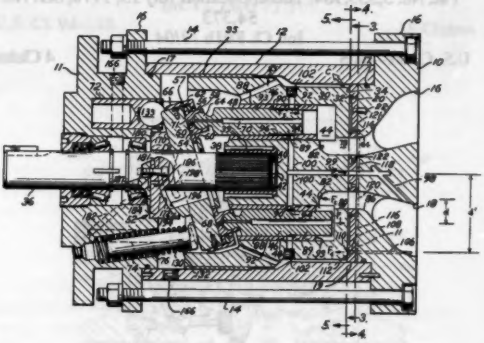
A flow control system for a transmission having a torque converter with a lockup clutch and a multi-ratio gear unit having fluid motors to establish the ratio drives. The controls have a shift system including a shift valve selectively supplying each fluid motor with leakage make-up flow to maintain a ratio established and shift flow to establish another ratio, a lockup clutch valve to engage the lockup clutch and a flow valve tripped by a fast change in flow rate on initiating shift flow to disengage the lockup clutch and permitting slow changes in the leakage flow rate without tripping. These flows pass through a restriction providing a differential pressure which selectively actuates the trip control and the response control of the flow valve. The slowly increasing leakage flow rate actuates the response control which increases the size of the restriction or the return biasing force to permit slowly increased leakage flow without actuating the tripping control to trip the flow valve. The response control is unresponsive to the rapid increase of the shift flow rate which only actuates the tripping control to trip the flow valve.

3,682,044
BALANCED HYDRAULIC DEVICE

Jay H. Ankeny, West Des Moines; Harold W. Foddy, Woodward, and Dayton F. Kessler, Des Moines, all of Iowa, assignors to Delavan Manufacturing Company, Inc.

Filed March 31, 1970, Ser. No. 24,163
Int. Cl. F01b *13/04*
U.S. Cl. 91—487 20 Claims

In an axial piston hydraulic device, having an angularly tiltable tilt plate for controlling the stroke of the pistons, the cylinders in the rotor communicate with the high and low pressure ports of the device by way of passages which are positioned between the axes of the cylinders and the rotational axis of the rotor to reduce resistances to fluid flow resulting from rotor rotation when the cylinders are on their low pressure stroke. Additional passages are provided which communicate the high pressure port with the rotor and/or the bearing of the tilt plate to exert counterbalancing forces on these components during operation of the device. On- and off-stroke control pistons may also be positioned on the side of the tilt plate opposite the pistons to exert counterbalancing forces on the tilt plate.

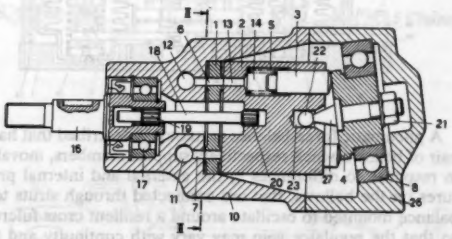


3,682,045
Patent Not Issued For This Number

3,682,046
HYDRAULIC PUMP HAVING NON-RADIAL CYLINDERS CONTAINED IN A ROTOR

Giampaolo Garcea, Milan, Italy, assignor to Alfa Romeo S.p.A., Milan, Italy

Filed April 17, 1970, Ser. No. 29,503
Claims priority, application Italy, April 30, 1969, 16289 A/69
Int. Cl. F01b *13/04*
U.S. Cl. 91—499 5 Claims



A hydraulic pump having a rotor with pistons which slide in cylinders formed through the rotor and arranged around the axis of rotation thereof. The free ends of the pistons project from the rotor and adhere to an inclined reaction surface. On the side of the projecting pistons, the rotor is supported by a pin having a spherical head which is inserted in an axial cylindrical cavity of the rotor. The pin is supported, in turn, in a freely rotatable manner, about its own axis which is perpendicular to the inclined reaction surface. On the side away of the projecting pistons, the rotor adheres with a planar surface perpendicular to its axis of rotation, to a surface of a distributor in which the intake and delivery ports for the liquid have been formed.

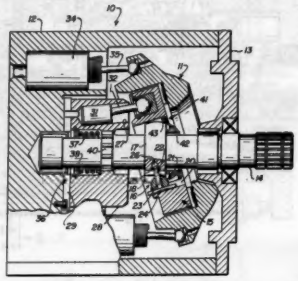
3,682,047
AXIAL PISTON PUMP

Arthur F. Anderson, Elmhurst, Ill., assignor to Trans-Wheel, Inc., Addison, Ill.

Continuation-in-part of Ser. No. 716,735, March 28, 1968, Pat. No. 3,535,984. This application July 13, 1970, Ser. No. 54,373

Int. Cl. F01b *13/04*

U.S. Cl. 91—505 4 Claims



An axial piston pump having an improved construction for retaining the drive flange within the hanger thereof, the same including a spherical socket formed of a convex spherical hold-down ring and a concave spherical ring.

3,682,048
FORCE-BALANCE PNEUMATIC REGULATOR WITH RESILIENT CROSS FULCRUM, HAVING HIGH SENSIBILITY AND PRECISION AND EASY, CONTINUOUS GAIN REGULATION

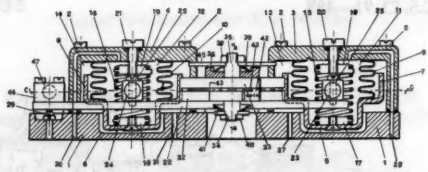
Giorgio Bergamini, Corso Sicilia, 56 Bari, Italy

Filed Nov. 6, 1970, Ser. No. 87,495

Claims priority, application Italy, Sept. 11, 1969, 21931 A/69

Int. Cl. F01b *19/00*

U.S. Cl. 92—37 2 Claims



A pneumatic force-balance regulator is described that has a pair of bellows which respectively support members, movable in response to differences in the external and internal pressures on the bellows, that are connected through struts to a balance mounted to oscillate around a resilient cross fulcrum so that the regulator gain may vary with continuity and the axes of the struts lie in the plane containing the axis of oscillation of the balance so that parasitic forces, acting on the struts along their axes, do not affect the equilibrium of the balance.

3,682,049
HYDRAULIC VEHICLE BRAKES

David William Gee, and Michael Albert Carey, both of Kings Road, Tyseley, Birmingham II, England

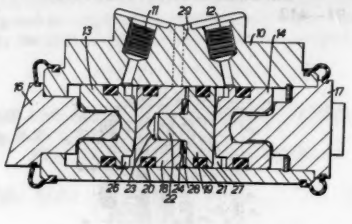
Filed Jan. 9, 1970, Ser. No. 1,753

Claims priority, application Great Britain, Jan. 20, 1969, 3,223/69

Int. Cl. F01b *1/02*

U.S. Cl. 92—61 6 Claims

To ensure adequate exercise of the seal of the intermediate piston means of a dual chamber hydraulic slave cylinder, the piston means is constructed as two separate piston members, axially movable relative to each other and normally urged apart by spring means, which may, e.g. be a belleville type or a coil compression spring. Interengaging spigot and socket means on the piston members may be provided to guide the two members and stabilize them against tipping movement.



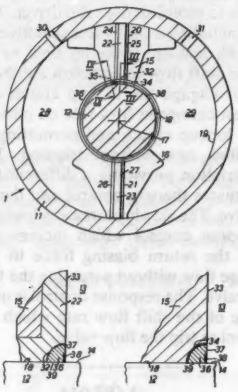
3,682,050
OSCILLATORY FLUID-PRESSURE-OPERABLE MACHINES

John Michael Hyde, Tuffley, England, assignor to Dowty Hydraulic Units Limited, Cheltenham, England

Filed Dec. 3, 1970, Ser. No. 94,791

Int. Cl. F01c *9/00*

U.S. Cl. 92—125 10 Claims

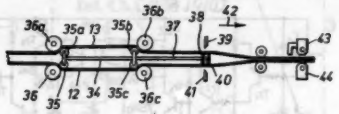


A vane-type oscillatory fluid-pressure-operable machine includes a cylindrical casing and a shaft extending therefrom, the fixed and movable vanes of the machine forming at least two variable-volume chambers. Sealing devices of a resilient material are carried upon the vanes at those faces thereof in slidable engagement with adjacent portions of the machine. A substantially rigid sealing ring is provided which is mounted upon and sealingly engages the shaft adjacent an end wall of the casing and which is engaged by the sealing devices so that it is urged axially thereby to be maintained in complete peripheral sealing engagement with said end wall whatever the rotational position of the shaft and movable vane or vanes with respect to the casing.

3,682,051
METHOD AND APPARATUS FOR MAKING CARRYING BAGS AND A CARRYING BAG PRODUCT

Karl Heinz Sengewald, 4801 Kunsebeck, Westphalia, Germany

Filed June 29, 1970, Ser. No. 50,510
Claims priority, application Germany, July 4, 1969, P 19 34 041.1
Int. Cl. B31b 49/04
U.S. Cl. 93—35 R 14 Claims

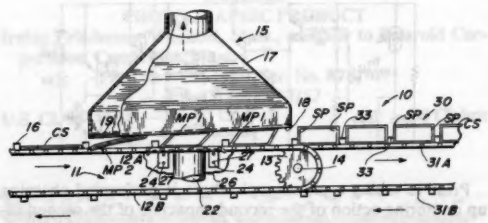


Synthetic plastic bags are produced and goods packaged therein by forming a series of bags individually complete but successively connected in, yet easily torn off from, a long strip wound as produced into a supply roll shipped to the point of use, the strip being unwound to present each successive bag dependently and with mouth open to a feed chute to receive goods to be packaged. An advancing continuous flattened thermoplastic film tube, produced either by extrusion or by longitudinally folding and seaming single sheet stock, with application of reinforcement for grip hole cut outs longitudinally spaced at the bag height, is transversely seam welded to form the bottom of one bag and, adjacently parallel to the bottom seam, perforated and severed in the respective tube layers to form the mouth top opening of the trailing next bag; the resultant bag strip being wound with the severed side outermost. Bag constructions with and without expansible side folds and also apparatus for manufacturing the former are described.

3,682,052
MECHANISM FOR ERECTING CARTON SLEEVES

Ralph O. Vuilleumier, Malvern, Pa., and Giulid B. Bagnatori, Wilmington, Del., assignors to Container Corporation of America, Chicago, Ill.

Filed Oct. 21, 1970, Ser. No. 82,630
Int. Cl. B31b 1/76
U.S. Cl. 93—53 R 17 Claims

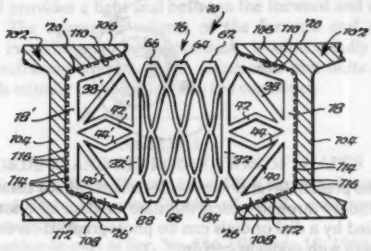


Mechanism for erecting collapsed and flattened carton sleeves which have become curved out of the plane containing the panels constituting the sleeve. The curved flattened sleeves move along a first conveyor having structure engaging a trailing edge of the flattened sleeve, and a suction device retards a first panel of the sleeve to cause the latter to be partly erected. A second suction device engages an opposite panel of the sleeve and straightens any curve in the second panel of the flattened sleeve. A second conveyor receives the partly erected carton sleeve and completes the erection thereof by trapping the sleeve between means movable with said conveyor and spaced a distance corresponding to the dimension between end walls of the erected sleeve.

3,682,053
SEALING MEMBER

James J. Kerschner, Buffalo, N.Y., assignor to Acme Highway Products Corporation, Buffalo, N.Y.

Filed Feb. 16, 1971, Ser. No. 115,518
Int. Cl. E01c 11/10
U.S. Cl. 94—18 15 Claims

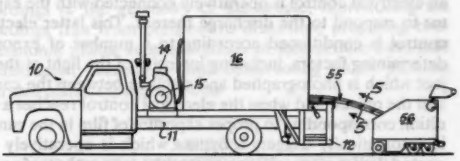


An elongated resiliently yieldable sealing member for use in an expansion joint comprising a pair of side sections and a flexible intermediate section interposed between and formed integral with the side sections. The intermediate section has a flexible internal truss structure which is readily compressible and which accommodates movements in various planes while maintaining sealing pressure against adjoining structural members. The outer surfaces of the side sections conform to the flanges of standard structural members.

3,682,054
APPARATUS FOR APPLYING A TWO-COMPONENT EPOXY RESIN MARKING COMPOSITION

Larry S. MacPhail, Bel Air, Md.; Harold Ray, Simpsonville, S.C.; Oral P. Smith, and Lee C. Hall, both of Cincinnati, Ohio, assignors to Traffic Control Materials & Machines Corporation, Bel Air, Md.

Filed June 18, 1970, Ser. No. 47,423
Int. Cl. E01c 19/12
U.S. Cl. 94—44 5 Claims

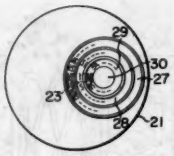


A truck includes a body in the form of a closed, heat-insulated chamber. The chamber contains separate, heated supply vessels for an epoxy resin and a curing agent. A cart which moves along the pavement behind the truck mounts a spray gun and a number of valves. The epoxy resin composition is continuously circulated through its supply vessel and one of these valves by heated conduits. The catalyst is also continuously circulated through its supply vessel and another valve by heated conduits. The valves are controlled by the operator of the cart for mixing the two components and spraying the resulting mixture as a coating on the surface to be marked.

3,682,055
LENS CAP FOR CAMERA

Takeshi Okano, Amagasaki, and Masakazu Nagai, Ashiya, both of Japan, assignors to Konan Camera Laboratory Company Limited, Kobe, Japan

Filed Jan. 27, 1970, Ser. No. 6,070
Claims priority, application Japan, Jan. 31, 1969, 44/9060; Jan. 31, 1969, 44/9061
Int. Cl. G03b 17/24
U.S. Cl. 95—1.1 1 Claim

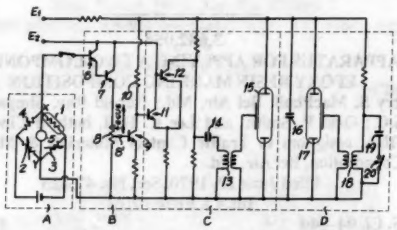


The present invention provides a lens cap for camera having a window through which the date or data of photographing carried by a dial or dials can be photographed on the film of a camera with said lens cap on.

3,682,056
FLASH CONTROLS FOR CAMERAS

Seijiro Tokutomi, Fujisawa, Japan, assignor to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo-to, Japan

Filed Sept. 8, 1970, Ser. No. 70,286
Claims priority, application Japan, Sept. 18, 1969, 44/88896
Int. Cl. G03b 15/05; H05b 41/32
U.S. Cl. 95—10 CE 14 Claims



A system for controlling the extent of flash illumination provided in connection with exposure of film in a camera. A flash tube is energized by way of a discharge from a capacitor, and an electrical control is operatively connected with the capacitor to respond to the discharge thereof. This latter electrical control is conditioned according to a number of exposure-determining factors, including intensity of the light at the object which is photographed and distance between the camera and the object, and when the electrical control reaches a condition corresponding to proper exposure of film in the camera, it automatically triggers a bypass which is operatively connected with the capacitor to bypass the energy thereof so as to terminate the flash illumination.

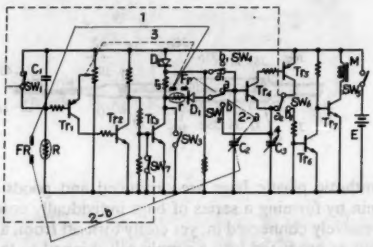
3,682,057
APPARATUS FOR ADJUSTING THE ELECTRONIC SHUTTER OF A "THROUGH-THE-LENS" TYPE CAMERA

Takayoshi Sato, Tokyo, Japan, assignor to Kabushikikaisha COPAL, Tokyo, Japan

Filed Oct. 13, 1970, Ser. No. 80,317
Claims priority, application Japan, Oct. 27, 1969, 44/85229
Int. Cl. G03b 7/08
U.S. Cl. 95—10 CT 14 Claims

The electronic shutter of a "through-the-lens" type photographic camera is adjusted to compensate for exposure factors such as the speed of the film in use, and the aperture of the camera lens. The camera is of the type that includes an integrating circuit having a first light-sensitive photocell receiving light through the camera lens, and memory and exposure control circuits each respectively including second and third photocells receiving light directly from the object to be photographed.

In a first embodiment of the invention coupled diaphragms are positioned in front of the first and at least one, or both, of



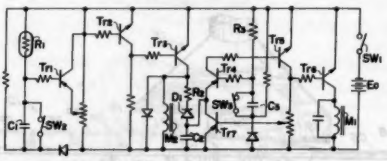
the second and third photocells. Thus, as the aperture of the first photocell is altered to compensate for exposure factors there will be a corresponding alteration in the aperture of the other photocells, thereby maintaining a constant resistance ratio therebetween.

In another embodiment of the invention, the variable diaphragm associated with the first photocell is mechanically coupled with a variable capacitor in the memory circuit, thereby ensuring proper exposure over a wide range of light exposure conditions.

3,682,058
ELECTRONIC SHUTTER FOR SINGLE-LENS REFLEX CAMERA

Yasuhiro Wada, Tokyo, Japan, assignor to Kabushiki Kaisha Koparu, Tokyo-to, Japan

Filed Nov. 30, 1970, Ser. No. 93,717
Claims priority, application Japan, Dec. 3, 1969, 44/96923
Int. Cl. G01j 1/00, 1/52
U.S. Cl. 95—10 ST 5 Claims



Prior to taking a photograph, there is performed charging up or storing action of the second capacitor of the second integral circuit while the first integral circuit having a photoelectric element is being actuated. Since arrangement is provided so that "mirror lifting" is to be prevented during this storing period by an electromagnet intended for mirror holding with no direct association with the mechanical release of the shutter, the storing can be performed perfectly without stopping halfway even when the object to be photographed is of such an insufficient brightness as requiring a prolonged time for the storage. In the actual photography, the potential held by the second capacitor is compared with the potential of the third capacitor of the third integral circuit adapted to be actuated simultaneously with the starting of photography. The shutter blades are controlled by a transistorized switching circuit which is adapted to be actuated in association with this comparison of potentials.

3,682,059

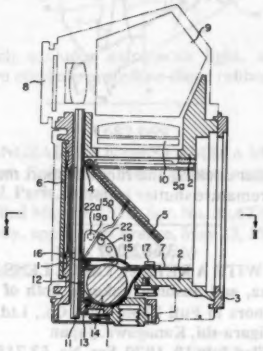
Patent Not Issued For This Number

3,682,060

BATTERY CELL STORAGE DEVICE FOR MINIATURE CAMERAS

Koichi Furuta, Tokyo, Japan, assignor to Nippon Kogaku K.K., Tokyo, Japan

Filed June 14, 1971, Ser. No. 152,530
Claims priority, application Japan, June 16, 1970, 45/59074
Int. Cl. G03b *19/02*
U.S. Cl. 95—11 R **3 Claims**



A battery cell is stored in the lower section of a reflex camera in a mirror housing. The cell is mounted in or dismounted from a storage chamber having a cover fixed to the mirror housing. The cover is arranged to be opened or closed, and an interlocking member is disposed between an electrical contact for the battery and the cover for retracting the contact in response to the opening of the cover.

3,682,061

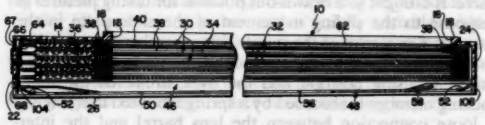
Patent Not Issued For This Number

3,682,062

PHOTOGRAPHIC PRODUCT

Irving Erlichman, Wayland, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Nov. 21, 1969, Ser. No. 878,747
Int. Cl. G03b *17/52*
U.S. Cl. 95—13 **48 Claims**



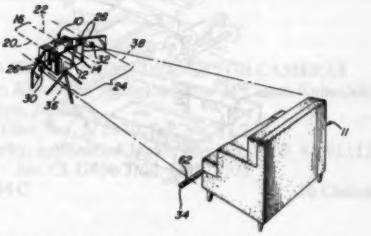
A photographic film pack of the self-developing type comprising a container having a substantially constant volume divided into forward and rear chambers by a movable divider and a plurality of self-developing film units arranged in stacked relation in the forward chamber. The container includes an exposure aperture and openings permitting an exposed film unit to be withdrawn from the forward chamber for processing, to be introduced into the rear chamber for continued processing and/or storage, to be withdrawn from the rear chamber for examination, and to be returned to the rear chamber for storage following examination. The film pack also includes light shields for the exposure aperture and at least the withdrawal opening and a retaining member permitting introduction of a film unit through the opening through which film units are first introduced into the rear chamber while restraining the film unit against movement from the rear chamber through the same opening; and a resilient element for supporting film units in position for exposure. The divider includes a battery for operating a component of the photographic apparatus in which the film pack is employed and provides a light seal between the forward and rear chambers. The aggregate volume of the forward and rear chambers, in addition to being constant, is substantially the minimum sufficient to contain the unexposed film units and light shields initially contained within the container.

3,682,063

RECORDING AND REPRODUCTION OF SHAPES

Allen B. Dicus, Jr., River Forest; Arnold S. Kharasch, Lincolnwood, and Sheldon Lavin, Skokie, all of Ill., assignors to Photogramics, Inc.

Continuation-in-part of Ser. No. 566,105, July 18, 1966, abandoned. This application March 8, 1971, Ser. No. 122,242
Int. Cl. G03b *35/08*
U.S. Cl. 95—18 **26 Claims**



A cover for an article of furniture, said cover conforming to the surface configuration of the article and including a plurality of interconnected panels prepared from panel patterns and a method of making the covers. The patterns are constructed by the method of making a plurality of two-dimensional recordings of the geometry of the article, reproducing the recordings free from perspective distortion, preparing two-dimensional planar representations of said article from said reconstructed recordings and constructing panel patterns from said planar representations.

3,682,064

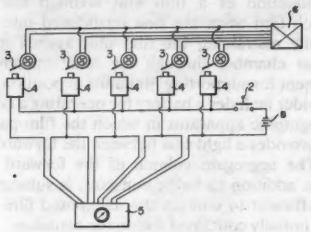
APPARATUS FOR STEREOGRAPHICALLY PHOTOGRAPHING A SCENE

Kenji Matsunaga, and Michio Horiuchi, both of Tokyo, Japan, assignors to Dai Nippon Insatsu Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 24, 1969, Ser. No. 869,047
Claims priority, application Japan, Dec. 28, 1968, 44/860
Int. Cl. G03b *35/08*
U.S. Cl. 95—18 P **3 Claims**

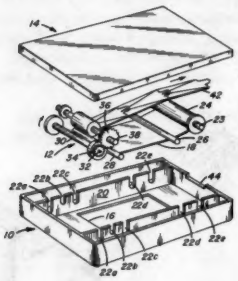
This invention relates to a method and an apparatus for instantaneously photographing animated and inanimated scenes stereographically. The method is carried out by using apparatus comprising a plurality of cameras placed at diverse vantage points having their optical axes convergent upon the scene to be photographed. Electronic devices are used for

setting the shutter speed for the shutter of each of said cameras, and electrical or mechanical devices are used for



either synchronizing or delaying the starting time of the shutter of each of said cameras.

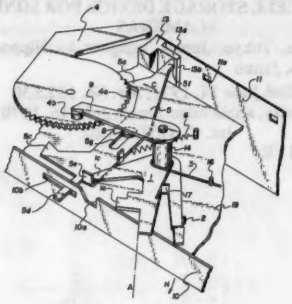
3,682,065
PHOTOGRAPHIC FILM PACK
William P. Ewald, 479 Weidel Road, Webster, N.Y.
Filed May 8, 1970, Ser. No. 35,784
Int. Cl. G03b *19/04*
U.S. Cl. 95—31 FM **8 Claims**



A film cartridge containing a roll of conventional photographic film—adapted for use in cameras of the instant processing variety, and which cameras may not have a film advancing and metering facility—is disclosed as having a built-in film advancing and metering strip. The strip is adapted to be pulled out of the cartridge/camera to wind up exposed film, and such strip contains thereon film frame indicia which is viewed as it is pulled out of the cartridge/camera.

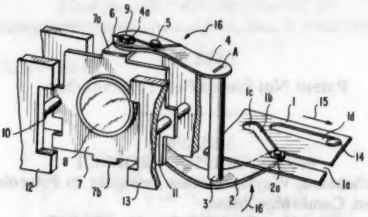
3,682,066
FILM METERING DEVICE FOR PHOTOGRAPHIC CAMERAS
Horst Simon, Fellbach, Germany, assignor to Eastman Kodak Company, Rochester, N.Y.
Filed Nov. 18, 1969, Ser. No. 877,788
Claims priority, application Germany, March 22, 1969, P 19 14 775.2
Int. Cl. G03b *19/04*
U.S. Cl. 95—31 FM **10 Claims**

A camera mechanism for metering the advancement of film having metering perforations is adapted to prevent damage to the perforations during the metering function. The mechanism includes a metering pawl which drops into a film perforation just prior to the complete advancement of the film by a full frame increment. The metering mechanism further includes a pawl which cooperates with the film advancing member during the final stage of the incremental film advance so as to transport the film by engagement of the metering pawl with the film at a speed at least as great as that imparted to the film by the film advancing member thereby assuring accurate film metering without the possibility of damaging the film. The mechanism is further adapted to prevent incomplete opera-



tion of the shutter cocking and film transport member as well as to prevent premature shutter action.

3,682,067
CAMERA WITH A RETRACTABLE LENS BARREL
Harumi Tanaka, and Susumu Fukuda, both of Nishinomiya, Japan, assignors to Fuji Photo Film Co., Ltd., Nakamima, Minami Ashigara-shi, Kanagawa, Japan
Filed July 10, 1970, Ser. No. 53,715
Claims priority, application Japan, July 11, 1969, 44/65670
Int. Cl. G03b *17/04*
U.S. Cl. 95—39 **5 Claims**

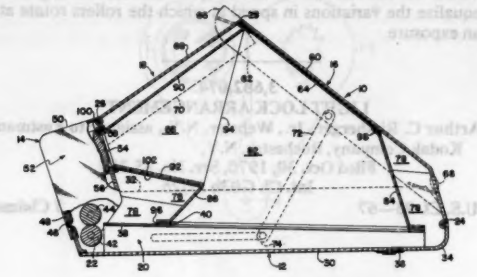


A photographic camera having a retractable lens barrel interlocked with a slide plate in the camera. The retractable lens barrel is brought to a drawn-out position for taking pictures in response to the sliding movement of the slide plate in the camera. The stroke of the interlocking member is larger than that required for drawing out the lens barrel to the predetermined focusing position and the over stroke of the interlocking member is absorbed by a spring mounted thereon and a loose connection between the lens barrel and the interlocking member permitting the same.

3,682,068
LIGHT ENVELOPE
Frank M. Stieger, Newton Highland, Mass., and Polaroid Corporation, Cambrige, Mass.
Filed June 11, 1969, Ser. No. 832,108
Int. Cl. G03b *17/04*
U.S. Cl. 95—39 **4 Claims**

An opaque envelope for utilization in a photographic

camera, said envelope comprising a light-transmitting



chamber which excludes extraneous light, and which is fabricated of an ethylene-propylene-diene rubber.

3,682,069

INTERCHANGEABLE LENSES CAMERA MOUNTING

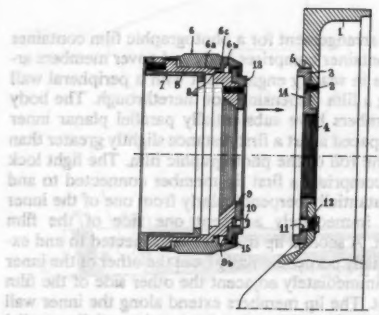
Jacques Lecoeur, Epinay sur Seine, France, assignor to Eclair International, Paris, France

Filed May 19, 1970, Ser. No. 38,673

Claims priority, application France, May 23, 1969, 6917006

Int. Cl. G03b *3/00*

U.S. Cl. 95—44 R **7 Claims**



A lens mount for a camera comprises an annular mounting member secured to the camera case and having an internally threaded aperture to receive a lens, an externally threaded rim portion and a plane front reference face. A mount for a heavier or larger lens, for example a zoom lens, comprises a flanged sleeve to receive the lens, an annular intermediate member in which the sleeve is secured and a fastening ring which is secured to the intermediate member by a centering and bearing member in such manner that the fastening ring is rotatable on the intermediate member and is axially slidable within limits. The fastening ring has an internally threaded inner end portion which screws onto the externally threaded rim of the mounting member to press the centering and bearing member tightly against the reference face of the mounting member.

3,682,070

RANGEFINDER AND METHOD

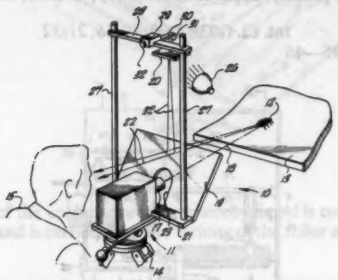
Taras Kiceniuk, 2816 Highview, Altadena, Calif.

Filed Oct. 26, 1970, Ser. No. 83,741

Int. Cl. G03b *3/04*

U.S. Cl. 95—44 C **13 Claims**

A rangefinder and a rangefinding method, the rangefinder being combined with a motion picture camera and comprising a transparent mirror mounted on the camera in an upwardly and forwardly inclinded position across the line of sight from an operator behind the camera to an object in front of the camera for viewing of the object through the mirror while the reflection of a second object a selected distance from the mirror is reflected therefrom in superimposed relation with the first object. This permits visual stereoscopic evaluation of the relative spacing of the two objects from the mirror and cor-



rection in the focus of the camera by moving the latter closer to or farther from the photographic object to maintain the two objects the same distance from the mirror. Alternatives include photographing of one object through the mirror in timed relation with periodic illumination of the reflected object, and photographing of the reflection of one object in timed relation with periodic illumination of the other.

3,682,071

AUTOMATIC FOCUSING DEVICE FOR CAMERAS

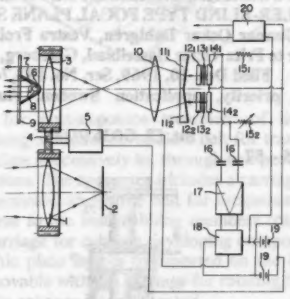
Kazuya Hosoe, Kawasaki, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 5, 1970, Ser. No. 87,237

Claims priority, application Japan, Nov. 15, 1969, 44/91112

Int. Cl. G03b *3/00*; G01c *3/08*

U.S. Cl. 95—44 C **10 Claims**



An automatic focusing device for cameras projects from the camera to an object to be photographed a spot of light whose intensity is modulated. The light reflected by the object is received by a range-finding lens and this received light is divided to form two images on two photoelectric effect elements, respectively, through an optical system which produces the two images with an apparent parallax except when the object is sharply in focus. The range-finding lens is movable with the phototaking lens and is shifted back and forth by the signal output from the photoelectric effect elements which signal varies depending upon whether or not the images on both photoelectric effect elements are free from apparent parallax.

3,682,072
DRIVING MECHANISM FOR COMPONENTS OF OPTICAL SYSTEM

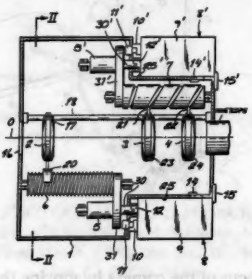
Karl-Gunter Hess, Waldlaubersheim; Paul Himmelsbach, Bosgrunderweg 65, and Otto Thomas, Matthias-Grunewald-Str. 36, both of Bad Kreuznach, all of Germany

Continuation-in-part of Ser. No. 602, Jan. 5, 1970. This application Sept. 8, 1970, Ser. No. 70,124

Claims priority, application Germany, Oct. 11, 1969, P 19 51 420.6

Int. Cl. G03b 3/00, 19/18, 21/32

U.S. Cl. 95—45 8 Claims



A television camera with two camming cylinders for the focusing of its objective and for the variation of its focal length (zoom effect) has two identical driving units removably attached to its housing, each unit including an electric motor in a prismatic casing with a motor shaft and an electric connector projecting from one end of the casing. Upon emplacement of the casing on the camera housing, the motor shaft engages a transmission shaft leading through a slipping clutch to a respective camming cylinder; at the same time an electric connection is established from the motor to zooming and focusing controls on the camera or on a remote panel. The coupling of the two shafts may be effected by a spring-loaded core slidably but nonrotatably held in an axial bore of the transmission shaft, this core coacting with a complementary slot in a head of the motor shaft.

3,682,073
CENTRIFUGAL COUPLING MEANS FOR PHOTOGRAPHIC CAMERAS PROVIDED WITH A ROLLER-BLIND TYPE FOCAL PLANE SHUTTER

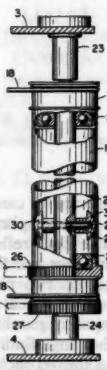
Lennart Gunnar Oskar Dahlgren, Vastra Frolunda, Sweden, assignor to Fritz Victor Hasselblad, Gateborg, Sweden

Filed Dec. 10, 1969, Ser. No. 883,747

Claims priority, application Sweden, Aug. 21, 1969, 11652/69

Int. Cl. G03b 9/28

U.S. Cl. 95—57 6 Claims



A centrifugal coupling device for photographic cameras provided with a focal plane shutter of the curtain type for the purpose of providing for uniform exposure over the entire frame, the device is embodied in one of the pairs of rollers which roll and unwind the curtain portion and is arranged to equalize the variations in speed at which the rollers rotate at an exposure.

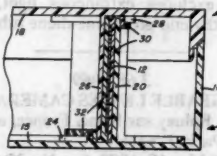
3,682,074
LIGHT LOCK ARRANGEMENT

Arthur C. Rissberger, Jr., Webster, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Oct. 30, 1970, Ser. No. 85,350

Int. Cl. G03b 17/26

U.S. Cl. 95—67 7 Claims



A light lock arrangement for a photographic film container wherein the container comprises body and cover members arranged to mate in sealing engagement with a peripheral wall portion having a film dispensing slot therethrough. The body and cover members have substantially parallel planar inner wall surfaces spaced apart a first distance slightly greater than the width of the roll of the photographic film. The light lock arrangement comprises a first lip member connected to and extending substantially perpendicularly from one of the inner wall surfaces immediately adjacent one side of the film dispensing slot. A second lip member is connected to and extends substantially perpendicularly from the other of the inner wall surfaces immediately adjacent the other side of the film dispensing slot. The lip members extend along the inner wall surfaces from the film dispensing slot in substantially parallel spaced relationship for a major portion of their length and diverge at the end thereof remote from the film dispensing slot. The lip members have a length perpendicular to the respective inner wall surfaces slight less than the distance between said inner wall surfaces. Means is arranged on each of the inner wall surfaces adjacent thelip member extending outwardly therefrom to form a recess arranged to guide and align the end of the lip member extending from the opposite inner wall surface. A layer of pile material is connected to the surface of a least one of the lip members adjacent the film dispensing slot with the layer of pile material covering substantially all of that surface of that lip member and extending around the end thereof remote from said respective inner wall surfaces. Thus, the pile material is expanded to fill the space between the lip members as the respective lip member fits within the recess on the opposite inner wall surface.

3,682,075
COMBINATION DIFFUSION AND VIGNETTING TOOL

Leo H. Profitt, 776 Lovetta Drive, Kettering, Ohio

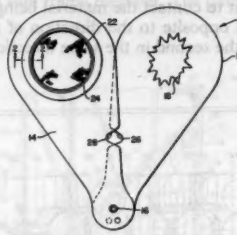
Filed Jan. 15, 1970, Ser. No. 3,176

Int. Cl. G03b 11/00

U.S. Cl. 95—65 3 Claims

A combination tool for use in photographic enlarging procedures is disclosed. The combination tool includes a dif-

fuser arm and a vignetting arm pivotally connected together.



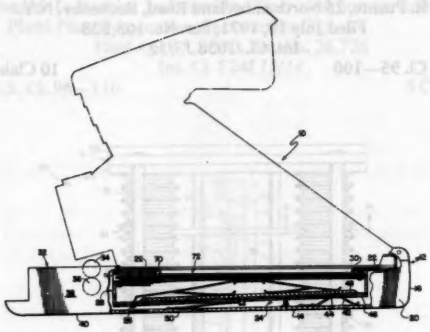
Each arm may be used independently of the other or in combination with each other to provide diffusion while vignetting.

3,682,076

SUPPORT MEMBER FOR PREVENTING INVERTED INSERTION OF A FILM CASSETTE

Irving Erlichman, Wayland, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed May 14, 1971, Ser. No. 143,450
Int. Cl. G03b *17/26, 17/32, 19/10*
U.S. Cl. 95—71 **12 Claims**



A camera having a film receiving chamber and a support member mounted within the chamber for urging and supporting a properly inserted film cassette into position for exposure of a film unit contained therein. The support member includes first and second sections spaced from each other to define a gap which is adapted to releasably retain a portion of the film cassette upon inverted insertion of the latter into the film receiving chamber, thereby preventing full insertion of the film cassette into the chamber.

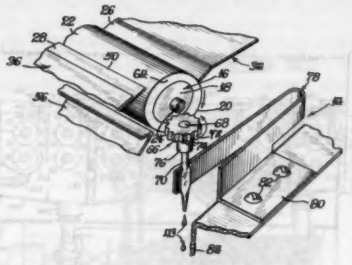
3,682,077

LIQUID COLLECTING APPARATUS

Richard T. Kent, Glen Elly, and Robert M. Koch, Wheaton, both of Ill., assignors to Addressograph-Multigraph Corporation, Mount Prospect, Ill.

Filed June 22, 1970, Ser. No. 47,948
Int. Cl. G03d *3/00*
U.S. Cl. 95—89 R **11 Claims**

Apparatus for collecting liquid accumulated at an end of a rotatably mounted applicator roller used for applying liquid to sheet material passed thereover, includes a rotatably mounted wheel having an irregularly contoured peripheral edge forming a plurality of cells therealong. The edge of the wheel is resiliently urged into contacting engagement with the roller end. Rotational movement is imparted to the wheel by the



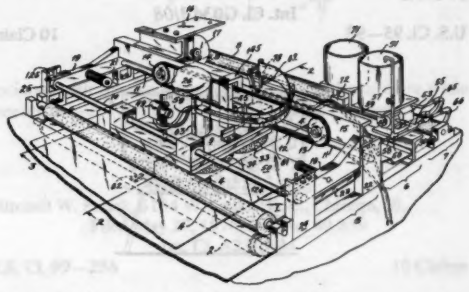
rotation of the applicator roller, whereby liquid is collected in the cells and is carried from the vicinity of the roller end.

3,682,078

APPARATUS FOR POST-EXPOSURE TREATMENT OF LITHOGRAPHIC PLATES

Edward H. Parker, St. Louis, Mo.; William F. Gould, Blackwood, N.J., and John H. Alley, Greensboro, N.C., assignors to Western Litho Plate & Supply Co., St. Louis, Mo.

Continuation of Ser. No. 745,736, July 18, 1968, abandoned. This application Nov. 8, 1971, Ser. No. 196,657
Int. Cl. G03d *3/12*
U.S. Cl. 95—89 R **18 Claims**



Apparatus for post-exposure treatment of lithographic plates comprising a horizontal endless belt for transporting a lithographic plate successively to, through and past a series of operating stations. The apparatus includes a carriage at one of the stations mounted above the belt for reciprocating movement transverse to the belt, rubbing members rotatably carried by the carriage for rubbing developing composition onto the lithographic plate as it is transported on the belt, and a mechanism movable with the carriage for rotating the rubbing members as the carriage is reciprocated.

3,682,079

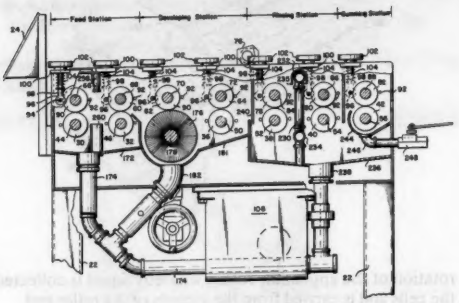
AUTOMATIC LITHOGRAPHIC PLATE DEVELOPING MACHINE

Edward A. Casson, Jr., Airpark Drive, Easton, Md.

Filed April 9, 1969, Ser. No. 814,566
Int. Cl. G03d *5/06*
U.S. Cl. 95—89 R **2 Claims**

A lithographic plate automatic developing machine having a plurality of feed rollers for conveying on exposed lithographic plate and a rotating and oscillating cylindrical member having a flexible peripheral surface which contacts the exposed surface of the lithographic plate for applying a

developing solution thereto and for building up an image thereon. Rinsing means are provided for washing the developing solution from the plate and a gumming solution is applied



to the developed surface by way of the periphery of one of the feed rollers sequentially engaging the solution and applying it to the developed surface prior to feeding the developed plate from the machine.

3,682,080

APPARATUS FOR DEVELOPING PHOTOGRAPHIC FILMS

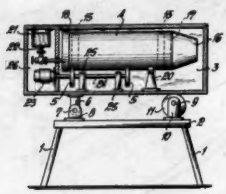
Werner Merz, Napoleonweg 3, 7911 Oberelchingen, Germany

Filed Nov. 6, 1970, Ser. No. 87,493

Claims priority, application Germany, Nov. 13, 1969, P 19 57 069.5

Int. Cl. G03d *3/08*

U.S. Cl. 95—93 **10 Claims**



One or more developing drums having spaced opposite ends are mounted for rotation in a housing and a supply supplies liquid developer to the interior of these drums. Raising arrangement utilizing eccentric cams or the like is provided for alternately raising or lowering one end of each drum at predetermined time intervals and through a predetermined distance to thereby cause longitudinally traveling waves of the developer in the drums.

3,682,081

Patent Not Issued For This Number

3,682,082

PROCESSING APPARATUS

Emile Frans Stievenart, Hoboken, Belgium, assignor to Agfa-Genart Belgian.

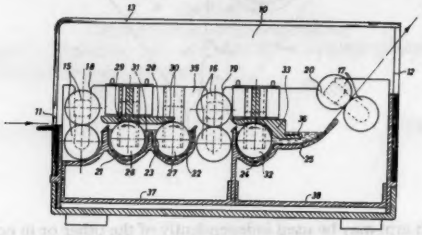
Filed Feb. 4, 1970, Ser. No. 8,533

Claims priority, application Great Britain, Feb. 4, 1969, 5,959/69

Int. Cl. G03d *3/12*

U.S. Cl. 95—94 R **5 Claims**

Processing apparatus for photographic material which contacts the material with a developer liquid and a fixing liquid in consecutive order, the developing liquid being applied by two spaced-apart applicator rollers partially immersed in such liquid, the first to contact the material being rotatably driven in a direction opposite to the direction of movement of the material and the second in the same direction as the material



direction but at a substantially greater linear speed, and the fixing liquid is applied by an applicator roller partially immersed therein which is rotatably driven in a direction opposite to the direction of the material through the apparatus. Preferably, pairs of driving rollers are provided on either side of the array of applicator rollers.

3,682,083

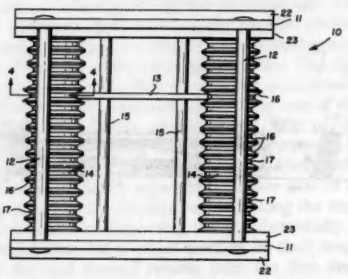
PROCESSING RACK FOR PHOTOGRAPHIC GLASS PLATES

Jose R. Puente, 25 Northumberland Road, Rochester, N.Y.

Filed July 19, 1971, Ser. No. 163,828

Int. Cl. G03d *13/12*

U.S. Cl. 95—100 **10 Claims**



An open frame processing rack for photographic glass plates has a pair of gripping rollers with annular grooves for engaging opposite edges of the plates. The rollers are resiliently biased against the edges of the plates, and the depth of insertion of the plates between the rollers is limited.

3,682,084

COMBINED VENTILATING LOUVER AND BACK DRAFT DAMPER

Sherwin S. Tarnoff, Northbrook, Ill., assignor to Air Balance, Inc., Chicago, Ill.

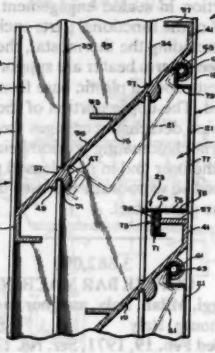
Filed Feb. 16, 1970, Ser. No. 11,726

Int. Cl. F24f *7/00*

U.S. Cl. 98—110 **5 Claims**

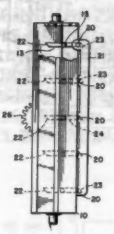
A back draft air damper is incorporated within a ventilating louver with pivotally mounted damper blades movable between a closed position in which the damper blades restrict air flow in a reverse direction and an open position in which the damper blades permit a substantial flow of air in a forward direction between fixed ventilating louver blades. Each damper blade has a lower seal for engaging a next lower louver

blade and surfaces along each vertical side thereof to seal against a vertical side frame member. The damper blades are



hinged along their upper edges to a louver blade thereabove to provide a sealed relationship at the top of the damper blades.

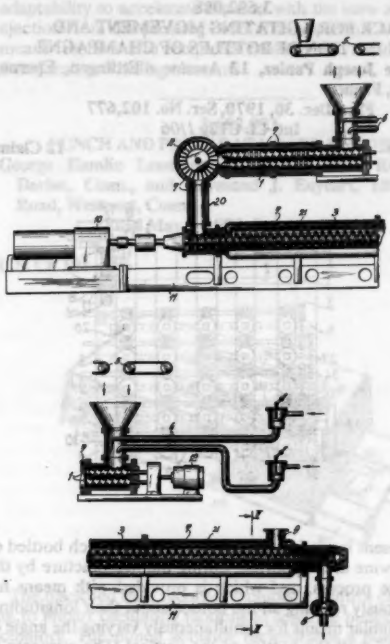
3,682,085
REGISTER
Donald I. Dennis, Jacksonville, Tex., assignor to American Plasti-Plate Corporation, Jacksonville, Tex.
Filed April 8, 1970, Ser. No. 26,726
Int. Cl. F24f *13/14*
U.S. Cl. 98—110 **5 Claims**



Disclosed is a register having pivotally mounted louvers with beveled edges. The louvers are mounted within the register frame in parallel relationship, the beveled edges adapted to mate with adjacent louvers to provide a continuous coplanar surface for blocking the register. The louvers are mutually interconnected with a control device for rotating the louvers in unison.

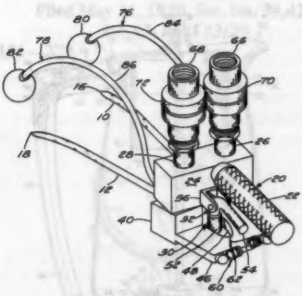
3,682,086
DEVICE FOR PRODUCING A MASS OF CHOCOLATE
Herbert Ocker, Leonberg, Germany, assignor to Werner & Pfleiderer, Stuttgart-Feuerbach, Germany
Division of Ser. No. 731,483, May 23, 1968, abandoned. This application Nov. 18, 1970, Ser. No. 90,621
Int. Cl. A23g *1/10*
U.S. Cl. 99—236 CC **8 Claims**

A device for producing a mass of chocolate in continuous operation in which the starting ingredients for producing the mass of chocolate are first fed to a mixing and kneading device. The mixture produced in the device is then fed to directly coupled liquefying means for liquefying the mixture which is finally fed to a multiple worm conveyor in which the liquefied mixture is conveyed between and along the worms of the conveyor to effect enriching or refining and deliquefying or dehydration of the mixture. Degasifying means are as-



sociated with the conveyor for degasifying the mixture while passing between and along the worms of the conveyor.

3,682,087
INJECTOR DEVICE
Mitchell W. Panek, 5104 W. Cullom Ave., Chicago, Ill.
Filed May 27, 1970, Ser. No. 40,859
Int. Cl. A23l *3/34*
U.S. Cl. 99—256 **10 Claims**



An apparatus for simultaneously injecting two opposite portions of a poultry breast with an additive comprises a pair of hollow needles mounted on a single handle with at least one of the needles being pivotedly mounted with respect to the other needle and including a finger operable device to cause movement of the pivotable needle. The two needles are spaced from one another and are movable from parallel to diverging postures so as to enable both needles to better follow the conformation of a poultry carcass as they are simultaneously in-

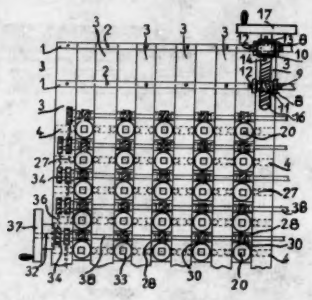
serted therein. Prior apparatus includes multiple needles in fixed positions with respect to one another.

3,682,088

RACK FOR AGITATING MOVEMENT AND INCLINATION OF BOTTLES OF CHAMPAGNE

Jean-Marie Joseph Paniez, 13 Avenue d'Ettlingen, Epernay (Marne), France

Filed Dec. 30, 1970, Ser. No. 102,677
Int. Cl. C12g *1/06*
U.S. Cl. 99—277.2 **12 Claims**



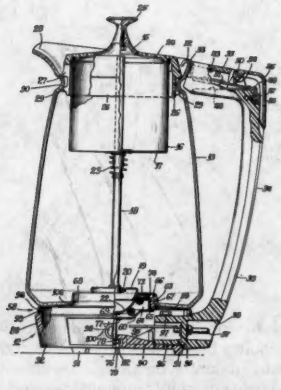
The present invention relates to a rack on which bottled of sparkling wine are supported, during the manufacture by the champagne process, and which is provided with means for simultaneously rotating all the bottles about their longitudinal axis and similar means for simultaneously varying the angle of inclination of all the bottles to the vertical. The purposes of this to ensure that any sediment in the wine collects in the neck of the bottles on the cork.

3,682,089

ELECTRIC COFFEE PERCOLATOR

John J. Unger, Elmhurst; Robert J. Augustine, Downers Grove, and Farees U. Khaja, Chicago, all of Ill., assignors to Sunbeam Corporation, Chicago, Ill.

Filed June 30, 1970, Ser. No. 51,193
Int. Cl. A47j *31/00*
U.S. Cl. 99—281 **12 Claims**



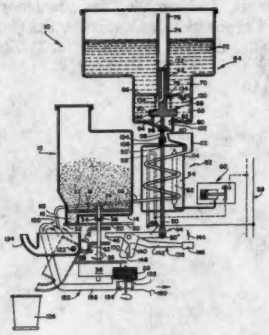
An electric coffee percolator having a glass vessel with an opening in the bottom through which a metallic well for a pump assembly extends. Associated with the well are electric heating elements for both operating the percolator pump and keeping the contents of the vessel warm after coffee making has been completed. The seal between the metallic heater and well portion and the glass vessel is accomplished by an annular gasket which is of substantial vertical height and includes an undercut at the lower edge thereof to receive and lock the glass vessel portion in sealed engagement with the metallic well portion. All of the functional parts enclosed in the base of the percolator including the thermostat, the main heating element, and the keep warm heater are supported in a unitary assembly which rests upon a plastic base from which the handle is also supported. The upper portion of the handle includes a simple latch which detachably engages the upper edge of the glass vessel, the latch actuating portion being easily accessible to the hand of the user and in its released position being substantially exposed so as to warn the user that the latch is not engaged with the glass vessel.

3,682,090

COFFEE BAR MACHINE

Vincenzo Meriggi, Milan, Italy, assignor to Coffee Corporation S.A., Luxembourg, Italy

Filed Feb. 19, 1971, Ser. No. 117,029
Int. Cl. A47j *31/00*
U.S. Cl. 99—289 **34 Claims**



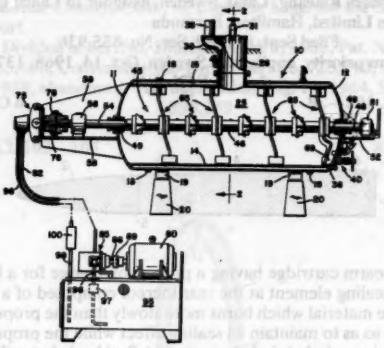
A coffee bar machine for producing and dispensing white coffee beverage from lyophilized industrial white coffee by introducing a metered quantity of said lyophilized coffee and a metered volume of heated water to a pivotally mounted mixing vessel from separate storage vessels for said coffee and unheated water, a pair of metering devices associated respectively with said separate storage vessels, the coffee metering device comprising an obturator or rotary disc device mounted on a motor driven shaft, the water metering device comprising a poppet valve operable by a cam mounted on the said motor driven shaft; a second cam is also mounted on said motor shaft and is operable to orient the mixing vessel in one orientation for receiving the ingredients and a second orientation inclined for dispensing the mixed beverage. The unheated water is measured into a conduit and heated in transit therethrough, the conduit including a coil disposed in an electrically operated heating device, the conduit terminating adjacent the mixing vessel. A manually operable lever is described for overriding the valve, if desired. A passageway arrangement is described whereby the flow of unheated water to the conduit is substantially constant. An air bleed or back pressure relief is described as applied to the water storage vessel and, also, a suction arrangement is described for reducing dust and/or water vapor found in the vicinity of the mixing vessel.

3,682,091

RENDERING COOKER

Dean K. Bredeson, Piqua, Ohio, assignor to The French Oil Mill Machinery Company, Piqua, Ohio

Filed March 16, 1970, Ser. No. 19,686
Int. Cl. A47j 27/52
U.S. Cl. 99—348 6 Claims



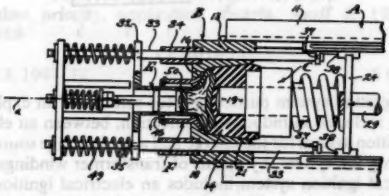
A material is rendered within a heated vessel or container which encloses a rotary agitator including a shaft driven by a hydraulic motor. Hydraulic fluid is supplied to the motor at a substantially constant pressure so that the motor transmits a substantially constant horsepower to the agitator shaft to effect an automatic increase in the rotational speed of the agitator when the required torque decreases and a decrease in speed when the torque increases.

3,682,092

APPARATUS FOR CORING AND PRESSING JUICE FROM FRUITS HAVING A RIND

Roger J. Breton, Los Angeles, and David F. Beck, San Juan Capistrano, both of Calif., assignors to Roto Manufacturing Company, Inc., Westiminster, Calif.

Filed July 16, 1970, Ser. No. 55,538
Int. Cl. B30b 15/14, 9/02
U.S. Cl. 100—52 19 Claims



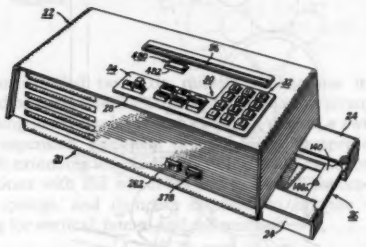
An apparatus for juicing fruit having a rind and varying in hardness and size, and performing, generally the steps of supporting a said fruit, cutting an opening through the rind at one side thereof, then confining the said fruit and applying external pressure thereto thereby extruding a core through the opening cut through the rind and delivering the juice from said fruit via said opening and through said extruded core; and including a hydraulically operated and hydraulically responsive mechanism involving a ram that moves the supported whole fruit onto a tubular coring knife that is perforated, thereby cutting an opening through the rind, a pressing head for receiving the said whole fruit which is moved thereinto by the ram which seals in the head, a rind ejector which closes the cylinder so as to oppose the ram, a pressure responsive hydraulic means operating the ram to press the fruit and thereby extrude a core of fruit through said opening cut through the rind and deliver juice from the core, and a core ejector within the coring knife and which is unique in its adaptability to accelerate the rind with the core attached for ejection from the pressing head. The apparatus also includes means responsive to reciprocal motions and timing the functional fruit processing elements.

3,682,093

PUNCH AND PRINT DATA CARD RECORDER

George Hamlin Leonard, 327 Hollow Tree Ridge Road, Darien, Conn., and Raymond J. Enyeart, 180 Roseville Road, Westport, Conn.

Filed May 1, 1970, Ser. No. 33,800
Int. Cl. B41j 3/50
U.S. Cl. 101—19 16 Claims



The disclosed data recorder includes a control cam operating to impart oscillating motions to separate punch and print actuators. The punch actuator reciprocates a punch bail to depress individual punches selected by data entry solenoids through punch interposers, thereby to perforate a data card. A step cam oscillated by the print actuator operates against print interposers coupled to the solenoids to angularly orient a print wheel, thus to imprint on the data card the data characters punched into the card. The data card is carried by a tray which is indexed through successive data entry positions in coordination with the control cam by tray stepping control apparatus. A replaceable ink cartridge supplies ink to the print wheel.

3,682,094

CLAD METAL MEMBER

Paul F. Greis, Thiensville, Wis., assignor to Metal Processing Co., Inc., Milwaukee, Wis.

Filed May 21, 1970, Ser. No. 39,424
Int. Cl. B41f 13/20
U.S. Cl. 101—375 4 Claims

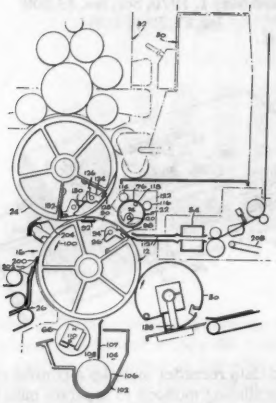
A clad printing drum for offset printing apparatus includes a cast iron or aluminum base to which a stainless steel cover is attached by an epoxy adhesive. A sheet of the epoxy is applied to the base. A spacing member formed of fiberglass strands and nylon strands is disposed over the covered base. An outer sheet of epoxy is applied over the spacing tube. The stainless steel cover is wrapped about the outer sheet with an outer clamping band to apply a predetermined pressure clamping of the epoxy and interposed spacing member. The clamped as-

sembly is heated to cause the resin to flow and cure while under the pressure of the clamping means.

3,682,095
DUPLICATING MACHINE

Bernard Kaminstein, Paramus, and Luciano Rattin, River Edge, both of N.J., assignors to Ing. C. Olivetti & C., S.p.A., Ivrea, Italy

Filed May 22, 1970, Ser. No. 39,772
Int. Cl. B41m 5/00
U.S. Cl. 101—463 **6 Claims**



A machine for automatically making multiple copies of a document on bond paper by first making a copy on zinc oxide paper, transferring toner from the zinc oxide copy onto a master sheet, and using the master sheet as a lithographic master for printing on ordinary paper. The machine utilizes a single transport drum to move the zinc oxide paper past stations where an image is focused thereon and developed, to carry a sheet of master material on top of the zinc oxide copy past an infrared heater for transferring toner from the copy to the master, to carry the master to a printing cylinder around which the master is to be wrapped, and to thereafter carry sheets of bond paper past the master on the printing cylinder.

3,682,096
ELECTRIC DETONATOR ELEMENT

Wolfgang Ludke, Sieglar, and Peter Roh, Oberlar, both of Germany, assignors to Dynamit Nobel Aktiengesellschaft, Traisdorf, Germany

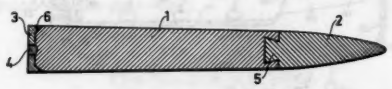
Filed July 25, 1969, Ser. No. 844,823
Claims priority, application Germany, July 25, 1968, P 17 71 889.7
Int. Cl. F42b 3/12
U.S. Cl. 102—28 R **7 Claims**

An electric detonator element in which an incandescent bridge, intended to set off a charge, is formed on one side of a non-conductive carrier which is inserted into a conductive housing and rests on its side opposite the bridge, against a center pole electrically connected with the housing by way of the bridge.

3,682,097
FIREARM CARTRIDGE

Gad Anders Rausing, Lund, Sweden, assignor to Ladco Enterprises Limited, Hamilton, Bermuda

Filed Sept. 8, 1969, Ser. No. 855,936
Claims priority, application Sweden, Oct. 14, 1968, 13799
Int. Cl. F42b 9/16
U.S. Cl. 102—38 **6 Claims**

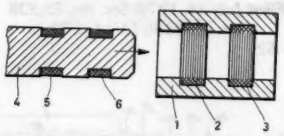


A firearm cartridge having a propulsion charge for a bullet and a sealing element at the rear thereof composed of a combustible material which burns more slowly than the propulsion charge so as to maintain its sealing effect while the propulsion charge is exploded and thus prevent flashback but will subsequently completely burn out to leave the cartridge chamber of the firearm clear for reloading.

3,682,098
EXPLOSIVE CHARGE IGNITION SYSTEM

Johann Spies, Pfaffenhofen, Germany, assignor to Messerschmitt-Bolkow-Blohm Gesellschaft mit beschrankter Haftung, Muenchen, Germany

Filed Jan. 2, 1970, Ser. No. 290
Claims priority, application Germany, Jan. 11, 1969, P 19 01 271.6
Int. Cl. F42c 11/04, 11/00, 15/40
U.S. Cl. 102—70.2 R **7 Claims**



An ignition system particularly for setting off an explosive charge includes an inductive connection, between an electrical ignition system for the charge and a feed voltage source for actuating the system, by means of transformer windings. The electrical ignition system includes an electrical ignition element which is actuated by the voltage induced in two coils, or transformer winding sections, of the ignition system which are wound in an opposite sense and arranged in series. The transformer winding of the ignition system is harmonized with the transformer winding having the feed voltage applied thereto and which may be inductively coupled to the transformer winding of the ignition system. The transformer winding having the feed voltage applied thereto also comprises two coils, or winding sections, wound in an opposite sense. The construction includes plug type connections, for example in the form of a female member or bushing which is adapted to receive a plug member or male part, the two parts having corresponding spaced inductive coils which align in the plugged in arrangement. The coils may also be formed on a flat plate in side-by-side relationship so that when a transmitting set arranged on one plate is superimposed on a receiving set on another plate, the corresponding coils may be superimposed.

3,682,099

Patent Not Issued For This Number

3,682,100

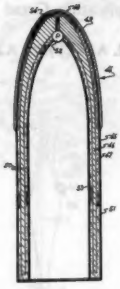
NOSE-CONE COOLING OF SPACE VEHICLES

John E. Lindberg, Jr., Lafayette, Calif., assignor to Sheriff of Alameda County, Calif., as Custodia Legis for the Superior Court

Division of Ser. No. 186,600, April 5, 1962, Pat. No. 3,255,698, Continuation-in-part of Ser. No. 725,110, March 31, 1958, abandoned. This application Aug. 11, 1964, Ser. No. 390,259

Int. Cl. F42b *15/12*

U.S. Cl. 102—105 8 Claims



This invention relates to the nose-cone cooling of space vehicles including missiles and more particularly to missiles whose nose structures incorporate means for dissipating heat therefrom.

3,682,101

MOBILE TRACK SURFACING MACHINE

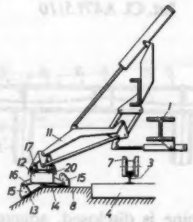
Franz Plasser, Vienna, and Ekkehardt Benda, Linz-Urfahr, both of Austria, assignors to Franz Plasser Bahnbaumaschinen-Industriegesellschaft m.b.H., Vienna, Austria

Filed March 16, 1970, Ser. No. 19,987

Claims priority, application Austria, April 4, 1969, A 3367/69

Int. Cl. E01b *27/16*

U.S. Cl. 104—12 8 Claims



In a track surfacing machine, a vibratory surface tamper is mounted on a vertically adjustable carrier on the machine frame, and at least two tamping plates are hinged to the tamper so that they may be held in selected angular positions in respect thereto to contact conforming surfaces of the track ballast.

3,682,102

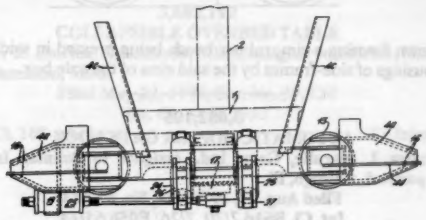
DAMPENED RAILWAY TRUCK

Arthur Ronald Pocklington, and Geoffrey Richard Mahy, both of London, England, assignors to British Railways Board, London, England

Filed May 9, 1969, Ser. No. 823,280

Int. Cl. B61f *3/00, 5/02, 5/30*

U.S. Cl. 105—157 R 13 Claims



A four-wheeled two axle railway vehicle has its body mounted on each wheel-set through a suspension arrangement comprising multi-stage vertical springing means, a swing-link lateral suspension, a resilient yaw suspension comprising traction rods extending longitudinally of the vehicle between their connections with the wheel-set and body and incorporation rubber springs, and dampers disposed to provide viscous damping for vertical, lateral and roll motions.

3,682,103

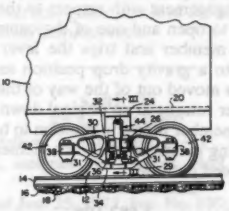
MOTION DAMPENING MEANS BETWEEN THE CHASSIS AND TRUCKS OF A RAILROAD CAR

Stuart A. Schwam, 372 Robinson Drive, Broomall, Pa.

Filed April 27, 1970, Ser. No. 31,969

Int. Cl. B61f *3/08, 5/06, 5/24*

U.S. Cl. 105—199 R 4 Claims



A railroad car is provided with motion dampening fluid units capable of automatically shifting back and forth between operation in accordance with one set of operating characteristics when the car is not loaded and a different set of operating characteristics when the car is loaded.

3,682,104

DEVICE FOR SUSPENDING SIDE-FRAMES ON AXLE BOXES FOR RAILWAY CARRIAGES AND SIMILAR APPLICATIONS

Paul Henricot, Ceroux-Mousty, Belgium, assignor to Societe Anonyme Usines Emile, Henricot Court-Saint-Etienne, Belgium

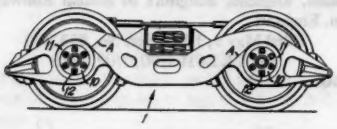
Filed June 22, 1970, Ser. No. 48,351

Int. Cl. B60b *17/00*

U.S. Cl. 105—224.1 4 Claims

The invention concerns a device for suspending side-frames on axle boxes for railway carriages and similar uses, wherein the housings in the side-frames are formed by openings with a

central rim defining two side housings, the axle boxes having a generally cylindrical shape with, frontwards and rearwards, a

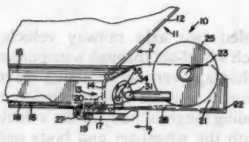


crown forming a rim, rubber beads being pressed in said side housings of side-frames by the said rims of the axle box.

3,682,105
AUTOMATIC HOPPER GATE LOCK

Walter J. Marulic, Gary, Ind., assignor to Pullman Incorporated, Chicago, Ill.

Filed Aug. 17, 1970, Ser. No. 64,483
Int. Cl. B61d 7/20, 7/26; E05b 65/14
U.S. Cl. 105—282 R **8 Claims**

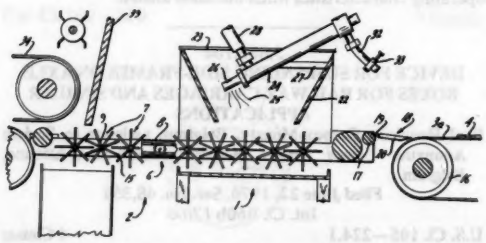


A hopper discharge arrangement includes a frame beneath a discharge opening with said frame slidingly supporting a gravity gate. The gate is movable to close the discharge opening and to one side thereof in the open position. An automatic lock includes a latch element which is movable with the gate, the said latch element having a pair of camming means. A latch member is pivotally connected to the frame and is adapted in the closed position of the gate to engage the latch element for securely locking said gate in its closed or transport position. A lever pivotally mounted on the frame is operatively connected to the latch member and upon movement of the lever to an over-center position the latch member is pivoted out of locking engagement with respect to the latch element. The gate is free to open and one of the camming means engages the latch member and trips the lever from its over-center position to a gravity drop position so that when the opening gate has moved out of the way of the latch member, the latch member returns to an original down or locked position. The latch member is now in position to be re-engaged by a second camming means on the latch element to again lock the same in a closed position.

3,682,106
FOOD APPLICATOR

Harvey G. Kuhlman, N56 W21466 Silver Spring Road, Menomonee Falls, Wis.

Filed April 27, 1970, Ser. No. 32,030
Int. Cl. A21c 9/08
U.S. Cl. 107—1 **7 Claims**

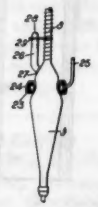


A conveyor for the bases includes a plurality of parallel longitudinally spaced tined shafts which are simultaneously rotated to carry the pizza bases through the food-depositing stations. The tines on adjacent shafts are offset and overlapped to minimize the spacing therebetween. The open structure defined by the tined supports provides an open structure to permit removal and/or recovery of the excess food. The sauce applicator includes a pressurized sauce spray head located within an open bottom enclosure mounted above the tined conveyor and includes a fluid activated cleaning pin to prevent clogging of the nozzle. The meat applicator includes a transfer belt which is cooled and a rotating metering means to drop selected amounts of grated meat upon the bases.

3,682,107
APPARATUS FOR DISPENSING MATERIAL ON PASTRY AND THE LIKE

John MacManus, 143-16 22nd Road, Whitestone, N.Y.

Filed Dec. 29, 1969, Ser. No. 888,557
Claims priority, application Great Britain, Dec. 31, 1968, 61,985/68
Int. Cl. A21c 9/06; A23g 1/20
U.S. Cl. 107—27 **5 Claims**

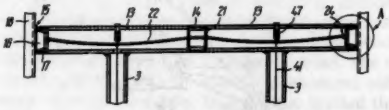


The apparatus includes an open entry disposable hose and forcing bag which are formed integrally with each other. At the end extreme from the feeding means, the bag includes a bulbous member. Several embodiments of the integral hose and bag are shown and described. When required, a venting hose is provided for release of trapped air in the material and communicates with an expansion chamber. In certain circumstances, a tube surrounds the bag and is selectively inflatable or deflatable for controlling dispensing of the material in predetermined amounts while still using, for example, a continually fed supply of material to the forcing bag.

3,682,108
DRAWING MACHINE

Evgeny Mikhailovich Perminov, ulitsa Angarskaya, 26, Korpus I, Kv. 10, Minsk, U.S.S.R.

Filed Dec. 30, 1970, Ser. No. 102,673
Claims priority, application U.S.S.R., Feb. 24, 1970, 1400962
Int. Cl. A47f 5/10
U.S. Cl. 108—6 **8 Claims**



A drawing machine is disclosed, adapted for association with drawing boards of considerable dimensions. The machine is characterized in that it comprises at least two guiding columns mounted on a base structure, the columns receiving therein reciprocable rods having lateral tubular members secured to the ends thereof, projecting from the respective columns.

These lateral tubular members are connected by slidable sleeves providing for limited rotation of said rods in respect of each other in two planes.

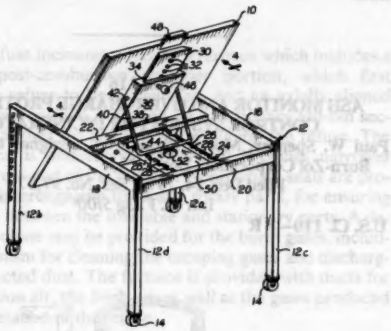
Conical couplings carrying thereon bracket means for supporting the drawing board are mounted on the respective free ends of the lateral tubular members and are interconnected by an elongated resilient connecting member passing through the lateral tubular members and holding them together in the direction of the longitudinal axis thereof.

3,682,109

ADJUSTABLE WORK TABLE

Roslyn Gordon, New York, N.Y., assignor to New York University, New York, N.Y.

Filed July 20, 1970, Ser. No. 56,406
Int. Cl. A47f 5/12
U.S. Cl. 108—9 5 Claims



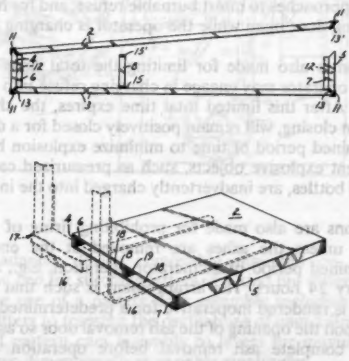
A work table having a supporting frame and a member defining a surface upon which work may be performed which is mounted upon the frame and adjustable to a variety of work positions. The work member is pivotable relative to the frame and may be fixed in any one of a plurality of angular positions. Additionally, the work member may be linearly moved relative to its pivot point and fixed in any one of a plurality of linear positions. The combined angular and linear adjustability provides a work surface offering widened versatility and adjustability in a table which is particularly suitable in the treatment of disabled children.

3,682,110

PALLET WITH IMPROVED JOINT CONSTRUCTION

George C. Harrison, Roseville, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed May 26, 1969, Ser. No. 827,746
Int. Cl. B65d 19/18
U.S. Cl. 108—51 4 Claims



Pallet made of wood members comprising upper and lower decks separated by side stringers and held together by adhesively bonded miter joints.

3,682,111

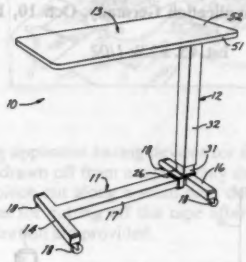
Patent Not Issued For This Number

3,682,112

COLLAPSIBLE OVERBED TABLE

Homer R. Emrick, Kalamazoo, Mich., assignor to Emrick, Inc., Kalamazoo, Mich.

Filed May 22, 1970, Ser. No. 39,938
Int. Cl. A47b 3/00
U.S. Cl. 108—116 5 Claims



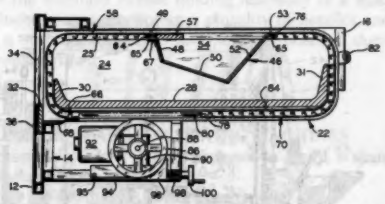
A collapsible bedside table having a horizontal base, a vertical guide post and an elevatable table top. The table top has a support portion adapted to cooperate with the vertical guide portion to maintain the table top horizontal as its vertical position is varied over a range. A first hinge member is secured between the base and the vertical guide post to permit a relative pivoting movement therebetween. A second hinge member is secured between the vertical guide post and the table top to permit a relative pivoting movement therebetween. The first and second hinges permit a movement of the base, the vertical guide post and the table top to a condition of parallelism therebetween.

3,682,113

DEAL DRAWER

Ralph E. McClellan, and Christopher C. Kirian, both of Toledo, Ohio, assignors to Mellink Steel Safe Company, Toledo, Ohio

Filed Jan. 25, 1971, Ser. No. 109,215
Int. Cl. E06b 7/32
U.S. Cl. 109—19 20 Claims



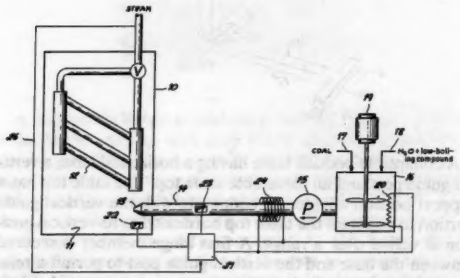
A deal drawer mounted for movement outwardly and inwardly of a stationary wall and/or housing having a removable tray or receptacle in a frame movably mounted in the drawer to move at a greater speed than the drawer with respect to the wall. Separate flexible members or tambours are connected at one of their ends to each side of the frame for the tray and at

their other ends to the housing, and slide in channels around the inside sides of the drawer to move or pull the frame and tray from a horizontal rearward position in the drawer to a forward and further downwardly tilted position when the drawer is moved outwardly of the stationary housing. The tray may be provided with a movable cover, and the drawer may be either operated manually or by power means, which power means is provided with engaging and disengaging means. If desirable, a heater and fan unit may be provided adjacent the opening in the stationary housing.

3,682,114
METHOD OF ATOMIZING A COAL/WATER SUSPENSION AND SYSTEM THEREFOR

Franz Nikolaus Scheubel, Darmstadt, Germany, assignor to Steinkohlen-Elektrizitot Aktiengesellschaft, Essen, Germany

Filed Oct. 8, 1970, Ser. No. 79,010
Claims priority, application Germany, Oct. 10, 1969, P 19 51 172.9
Int. Cl. F23k 1/02
U.S. Cl. 110—7 S **9 Claims**

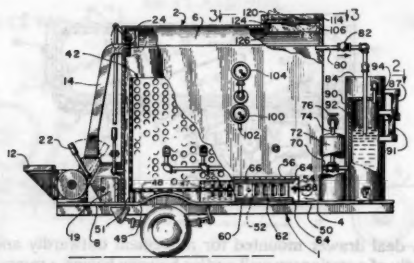


A coal/water suspension, contained or prepared in a storage vessel, is heated to a temperature corresponding approximately to the boiling point of at least one component of the mixture in the firing chamber of a boiler or the like and is then delivered to this chamber through an atomizing nozzle at a higher pressure at which the suspension is non-boiling.

3,682,115
PORTABLE DISPOSAL APPARATUS FOR COMBUSTIBLE WASTE AND REFUSE

Elbert A. Rodgers, 4520 Spencer Dr., Wichita Falls, Tex.

Filed Nov. 13, 1970, Ser. No. 89,294
Int. Cl. F23g 5/12
U.S. Cl. 110—8 C **9 Claims**

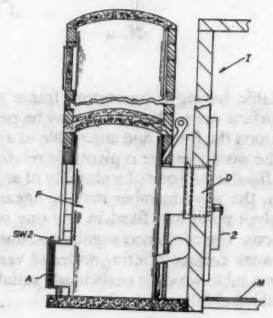


A system for disposing of combustible waste by an apparatus which may be vehicle mounted for movement over the terrain to places where combustible waste and refuse is located and the material burned without the necessity of transporting the raw waste and refuse many miles to an incinerator,land fill, or dump. The apparatus is vehicle mounted and has a crusher and chopper associated with a blower to reduce the waste and refuse to a burnable mass which is directed into a perforate receptacle within a combustion chamber, and, after igniting with an auxiliary fuel, the unburned gases are withdrawn from the combustion chamber and directed through burners to sustain combustion by burning the products of combustion which have not been fully consumed, which products of combustion are condensed to remove oils and tars and the gas therefrom is directed back into the combustion chamber to sustain combustion and to nullify the odoriferous gases. The residual tars, oils, and condensed liquids are removed from the condenser tanks from time to time.

3,682,116
ASH MONITOR AND OVERCHARGE PROTECTION CONTROL SYSTEM FOR INCINERATOR

Paul W. Spencer, Morris Plains, N.J., assignor to Northeast Burn-Zol Corporation, Dover, N.J.

Filed Dec. 14, 1970, Ser. No. 97,577
Int. Cl. F23g 5/00
U.S. Cl. 110—8 R **19 Claims**



This disclosure is directed to an electromechanical control system by which the routine day to day operation of an incinerator is protected from certain hazards commonly associated with incinerator operation. The control system provides for automatic opening of a charging door when an operator approaches to insert burnable refuse, and for holding the charging door open while the operator is charging the incinerator.

Provision is also made for limiting the total time during which the operator may engage in charging refuse into the incinerator. After this limited total time expires, the charging door, upon closing, will remain positively closed for a definite predetermined period of time to minimize explosion hazards in the event explosive objects, such as pressurized cans and stoppered bottles, are inadvertently charged into the incinerator.

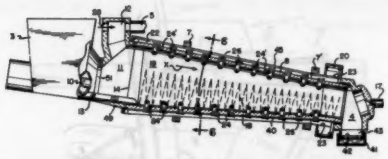
Provisions are also made for prohibiting firing of the incinerator unless the ashes are removed at the end of a predetermined period of incinerator operation, e.g., at least once every 24 hours. The arrangement is such that the incinerator is rendered inoperative for a predetermined period of time upon the opening of the ash removal door so as to provide for complete ash removal before operation can be resumed.

3,682,117

MOBILE REFUSE INCINERATOR

Louis Marie Rousseau, Neuville Sur Saone, France, assignor to Felix Bauer, Lyon, France

Filed Sept. 8, 1970, Ser. No. 69,657
Claims priority, application France, Sept. 11, 1969, 6931690
Int. Cl. F23g *5/06*
U.S. Cl. 110—14 10 Claims



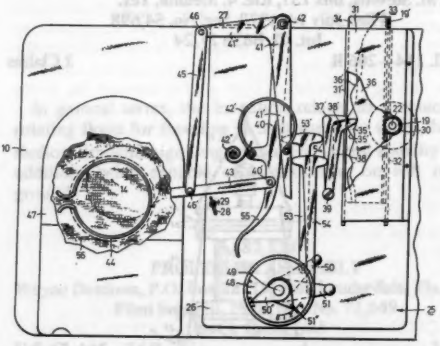
Mobile refuse incinerator having a furnace which includes a stationary post-combustion chamber portion, which first receives the refuse to be incinerated, and an axially aligned rotatable drum portion, followed by a stationary ash-bin section with a burner for igniting and reducing the refuse. The drum portion is preferably conical and becomes narrower toward the rear end of the furnace. Appropriate seals are provided, with interengaging fixed and rotary parts, for ensuring air-tightness between the rotatable and stationary parts. A decantation cyclone may be provided for the burnt gases, including a mechanism for cleaning the escaping gases and discharging the collected dust. The furnace is provided with ducts for the combustion air, the fresh air, as well as the gases produced by the incineration of the refuse.

3,682,118

ADAPTER DEVICE FOR STITCHING LETTERS

Bunsaku Taketomi, 56-141 Aza-Ishikane, Oaza-Iwasaki, Nisshin-cho, Aichi-gun, Aichi-ken, Japan

Filed July 8, 1970, Ser. No. 53,101
Int. Cl. D05c *3/02*
U.S. Cl. 112—102 5 Claims



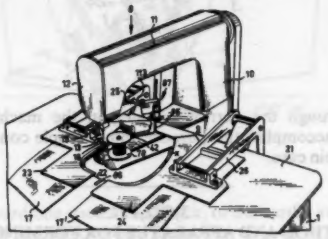
An adapter device removably mounted on a sewing machine bed for stitching letters of a kind but different in size with the use of a pattern cam assembly including a pair of transmitters to transmit the oscillations of cam followers tracing said pattern cam assembly to levers for moving a stitch frame two dimentionally in variable amplitudes.

3,682,119

APPARATUS FOR AUTOMATICALLY SEWING A TAPE ON WORKPIECES

Hubert Junemann, Bielefeld, Germany, assignor to Kochs Adlernahmaschinen Werke AG, Bielefeld, Germany

Filed March 2, 1970, Ser. No. 15,717
Claims priority, application Germany, Feb. 28, 1969, P 19 10 229.5
Int. Cl. D05b *3/00*
U.S. Cl. 112—121.14 8 Claims



A sewing apparatus having devices for automatically applying a tape drawn off from a tape supply during its application to a workpiece cut along a seam path determined by a template means for cutting off the tape after termination of the sewing operation are provided.

3,682,120

NEEDLE FEED MECHANISM FOR SEWING MACHINES

Juliet Kellard, 327 West Olympic Place, Seattle, Wash.

Filed Jan. 18, 1971, Ser. No. 107,091
Int. Cl. D05b *55/00*
U.S. Cl. 112—218 R 10 Claims

A needle feed mechanism for automatic sewing machines replaces the standard needle holding assembly of a machine and includes means for storing a plurality of needles and for feeding a stored needle into an operating position during a needle replacement.

3,682,121

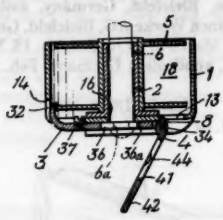
BOBBIN CASE FOR SEWING MACHINES

Keiki Kasawaki, Tokyo, Japan, assignor to Kenji Watanabe, Nugata-ken, Japan

Filed June 9, 1970, Ser. No. 44,723
Claims priority, application Japan, June 9, 1969, 44/44614; July 22, 1969, 44/57395; June 3, 1970, 45/47209; June 3, 1970, 45/47210
Int. Cl. D05b *57/14*
U.S. Cl. 112—231 6 Claims

The invention relates to an improvement of a bobbin case in which a finger piece on the bobbin case can be maintained in

raised position to facilitate grasping of the finger piece to thereby ease the fitting and unfitting operations of the bobbin



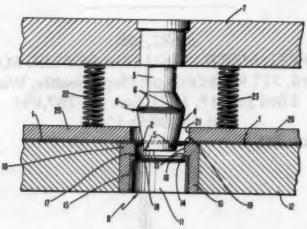
case through the narrow opening in the machine and to further accomplish this purpose with a simple construction of the bobbin case.

3,682,122

METHOD AND APPARATUS FOR FORMING HEAT EXCHANGE FIN COLLARS

Roger C. Haddon, Monroeville, and Colin H. Kilgore, New Kensington, both of Pa., assignors to Aluminum Company of America, Pittsburgh, Pa.

Filed Sept. 28, 1970, Ser. No. 75,805
Int. Cl. B21d *53/02*
U.S. Cl. 113—1 C **18 Claims**



Conjoint flanging, ironing and pinch-trimming fabrication of integral collars from metal sheet material, e.g. relatively thin work hardened aluminum alloy sheet material, having an aperture overlying a female die assembly of a coaxially arranged flanging and ironing die section and pinch-trim die section, said pinch-trim die section being disposed in predetermined spaced relation with said flanging and ironing die section and having a transverse shoulder contiguously connecting said die sections at the juncture therebetween, the axial position of the shoulder defining the height of the collar to be fabricated, by moving a selectively shaped male plunger having an enlarged sheet engaging portion through said sheet aperture and into operative relation with said female die sections to gradually and incrementally flange and iron the portions of said sheet material disposed about said aperture therein to form an extending collar of reduced wall thickness, and to sequentially force the deformed sheet material at said juncture against said shoulder to pinch-trim excess portions of the flanged and ironed sheet material to provide such reduced wall thickness collar with a uniform height and a well-defined collar edge.

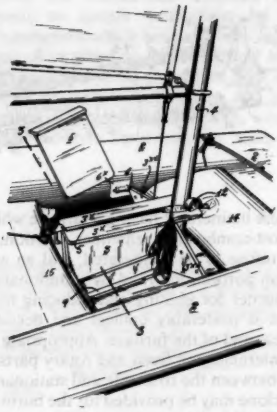
3,682,123

SAILING KIT FOR INFLATABLE BOATS

David V. Edwards, Mill Lane, Neshanic, N.J.

Filed March 10, 1971, Ser. No. 122,863
Int. Cl. B63b *35/00*
U.S. Cl. 114—39 **5 Claims**

For application to an inflatable boat having a longitudinal passageway in its bottom which customarily is formed as a flexible sheet, appliable means for receiving and holding a mast and a dagger board, comprising a removable substantially rigid member, as of wood, having a longitudinal slot with spaced side walls for registration with said bottom passageway and adapted to receive and hold upstanding extension areas at the margins of the bottom member, passageway, said slot



being adapted to receive said dagger board, said rigid member having a base area and a top area having holes adapted to receive and hold a mast, and said substantially rigid member transversely terminating with means for attaching and detaching it to the inflatable side walls of an inflatable boat, eliminating necessity of shrouds.

3,682,124

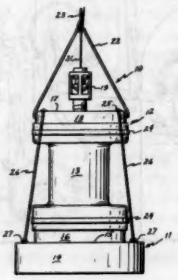
Patent Not Issued For This Number

3,682,125

ANCHOR

Elbert M. Stevens, Box 157, Rte. 4, Medina, Tex.

Filed July 14, 1970, Ser. No. 54,698
Int. Cl. B63b *21/24*
U.S. Cl. 114—206 R **2 Claims**



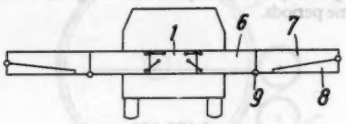
An anchor for ships and boats which upon lowering is partially embedded in the bottom of a body of water and is maintained in such position by the force applied by the water column bearing thereagainst.

3,682,126

AMPHIBIOUS BRIDGE VEHICLE

Gerhard Wagner, Mainz-Lerchenberg; Friedrich Kroll, Mainz; Horst Gleich, Heilbronn-Bockingen, and Georg Kessler, Oberwesel, all of Germany, assignors to Klochner Humboldt-Deutz Aktiengesellschaft, Koln-Deutz, Germany

Filed May 26, 1970, Ser. No. 40,490
Int. Cl. B60f *3/00*
U.S. Cl. 115—1 B 15 Claims



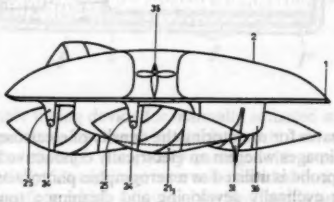
A vehicle having wheels for movement of the vehicle over the ground and having a longitudinal box-like frame with box-like bodies movably connected to the frame for movement thereon from a folded together position wherein the bodies are supported on the frame for transport to a folded out position wherein the bodies are arranged at opposite sides of the frame and form therewith an upwardly facing platform. The frame and bodies are buoyant and can thereby be utilized for forming bridges.

3,682,127

AMPHIBIOUS VEHICLE WITH ROTATING FLOATS

Bernard Edmond Louis Marie Waquet, Paris, France

Filed Sept. 9, 1970, Ser. No. 70,791
Claims priority, application France, July 21, 1970, 7027663; Sept. 11, 1969, 6930960
Int. Cl. B63h *1/38, /00*
U.S. Cl. 115—19 6 Claims



In general terms, the invention relates to a vehicle with rotating floats for traveling at high speed on water, having a shallow draught, high longitudinal and lateral stability and, in addition, being capable of maneuvering on soft or solid ground.

3,682,128

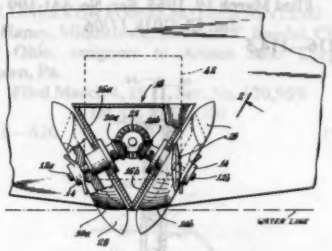
PROPELLER ASSEMBLY

Wayne Dunham, P.O. Box 22719, Fort Lauderdale, Fla.

Filed Sept. 10, 1970, Ser. No. 71,049
Int. Cl. B63h *5/08*
U.S. Cl. 115—34 R 2 Claims

A propeller assembly comprises a plurality of hubs mounted for rotation on an axis which is transverse to the direction of movement of the boat, each hub haVing a plurality of radially extending blades which are curved and present crowned, convex surfaces to the water. The assembly is disposed, either within the boat or attached to the rear transom, so that when the boat is in motion the hubs are tangent to the surface of the water and press down on the surface of the water, and the blades slide into, and out of, the water endwise.

The blades on the hubs of a pair of hubs are opposed and angularly related one to the other so that they impel water in-



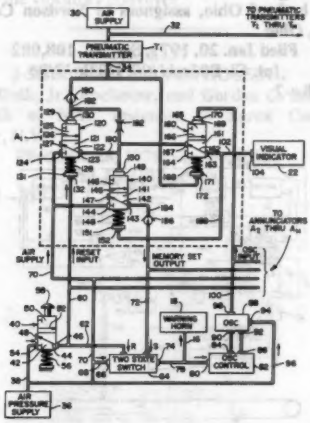
wardly toward one another and back, or outwardly away from one another and back, but not upwardly.

3,682,129

ANNUNCIATOR CIRCUIT FOR FIELD POINT MONITORING SYSTEM

Daniel W. Philbrick, Phoenixville, Pa., assignor to Robertshaw Controls Company, Richmond, Va.

Filed Oct. 29, 1970, Ser. No. 85,111
Int. Cl. G08b *1/04*
U.S. Cl. 116—65 15 Claims



An annunciator circuit for a field point monitoring system in which various ambient conditions such as temperature, pressure, vibration, etc. at a plurality of remote field points are simultaneously monitored. Three pneumatic diverting relays for each field point are cooperatively interconnected to provide a control circuit for use in conjunction with common reset and supply circuits as well as a common audio alarm to produce a normal indication whenever sensed conditions at a particular field point are within suitable tolerance limits, an audio signal accompanied by alternating visual indication initiated upon the detection of an alarm, a steady warning indication upon acknowledgement of e alarm by a central operator, and a normal indication automatically upon the resumption of normal ambient conditions at such field point.

3,682,130
FUSIBLE TEMPERATURE RESPONSIVE TRIGGER DEVICE

William D. Jeffers, Fresno, Calif., assignor to Jeffers & Bailey, Inc., Fresno, Calif.

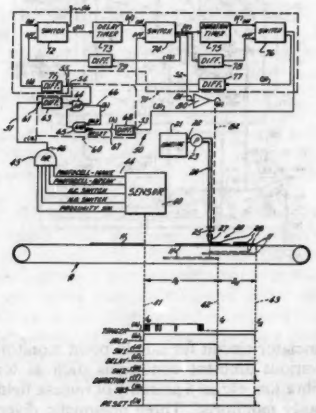
Filed March 19, 1965, Ser. No. 441,199
Int. Cl. G01k 11/06
U.S. Cl. 116—114.5 4 Claims

A temperature responsive device having an extensible indicator rod or staff which is held in place within a bored shell by a quantity of solidified fusible material received within a chamber communicating with complemental surfaces formed on the inner axial end of the staff and the bottom of the bored shell.

3,682,131
COATING APPARATUS CONTROL WITH DELAY-DURATION TIMER HAVING CONSTANT CURRENT CHARGING CIRCUIT AND BISTABLE TRIGGER CIRCUIT

Harvey R. Algeri, North Olmstead, and Robert E. Sandorf, Canton, both of Ohio, assignors to Nordson Corporation, Amherst, Ohio

Filed Jan. 20, 1971, Ser. No. 108,082
Int. Cl. B05c 11/00; H03k 17/26
U.S. Cl. 118—2 40 Claims

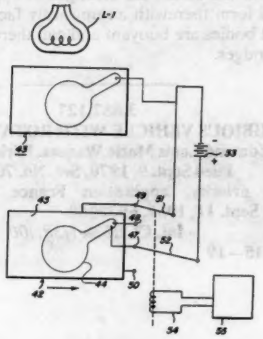


A control system for turning on and off an apparatus which discharges a coating liquid onto objects at a coating station. A sensor positioned adjacent the path of the objects upstream of the coating station initiates an interval timer as an object passes. After a predetermined time delay, the timer turns on a discharge gun positioned at the coating station, to begin to deposit the liquid upon the object. The timer maintains the discharge gun in an actuated condition for a predetermined time duration, and then turns the gun off. The control provides rapid and reliable turn on and turn off of the coating apparatus without false triggering, and provides precise time intervals which are continuously settable over an exceptionally wide range. The control utilizes a rapid reset hold and lock out circuit, SCR switches, unijunction relaxation oscillators having constant current charging circuits, an over voltage output circuit with short circuit protection, and means for programming the operation of plural discharge devices over different time periods.

3,682,132
AUTOMATIC DEVELOPER CONTROLLER

Roman C. Kamola, North Rose, N.Y., assignor to Xerox Corporation, Rochester, N.Y.

Filed March 3, 1969, Ser. No. 803,773
Int. Cl. B05c 11/00; B05b 5/02
U.S. Cl. 118—7 9 Claims



Apparatus for monitoring the density of electroscopic toner powder images wherein an electrically conductive light transmissive probe is utilized as a xerographic photoreceptor simulator for cyclically developing and cleaning a toner powder image on the probe surface. The density of the electroscopic toner image on the probe surface is sensed at a predetermined time by passing a light beam from a lamp through the probe and developer material into a photosensor. The photosensor and light source are supported in a protective sealed housing to eliminate contamination of these components by the ambient conditions of the xerographic developing apparatus. The photosensor is coupled to a threshold or level detector to generate a control signal when the density of the image developed on the probe surface is less than a predetermined amount.

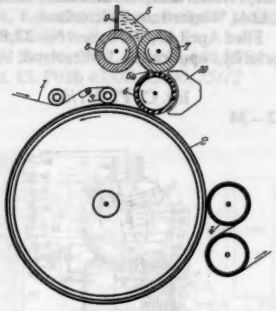
3,682,133
MACHINES FOR COATING A PRODUCT IN A BAND

Claude Gomarin, Champigny-sur-Marne, and Jean Vidal, Mulhouse, both of France, assignors to Societe Tunzini Ameliorair, Paris, France

Filed Aug. 3, 1970, Ser. No. 60,357
Claims priority, application France, Aug. 7, 1969, 6927186
Int. Cl. B05c 1/00, 11/00
U.S. Cl. 118—202 7 Claims

The machine includes a heating drum and a press roller ensuring the deposition on the heating drum of the material intended for the coating. Cooling means for the press roller are

provided to act from the outside over a fraction only of the cylindrical wall of the press roller. The machine enables the



coating of a product in a band by a material which has to undergo a heat treatment.

3,682,134

INKING DEVICE FOR STAMPING APPARATUS OR PRINTING MACHINES

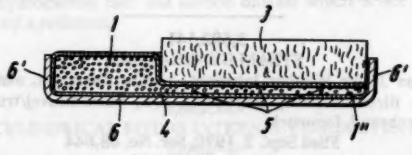
Heinz Jung, Furtwangen, Black Forest, Germany, assignor to Ernst Reiner Kommanditgesellschaft, Feinmechanik und Apparatebau, Black Forest, Germany

Filed March 6, 1969, Ser. No. 804,804

Claims priority, application Germany, March 27, 1968, R 37 245; April 17, 1968, P 17 61 195.9

Int. Cl. B05c *11/05*

U.S. Cl. 118—265 **9 Claims**



A disposable inking device for manually actuated stamping devices or printing machines in which a main ink reservoir communicates through a capillary passage with a relatively thin substantially flat auxiliary reservoir provided in a flexible top wall thereof, on which a liquid absorbent pad is supported with at least one outlet opening.

3,682,135

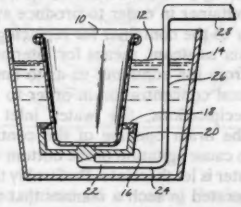
SHIELDING APPARATUS FOR PLASTIC ARTICLES

Richard K. Shelby, Chicago, Ill., assignor to Monsanto Company, St. Louis, Mo.

Continuation-in-part of Ser. No. 380,212, July 6, 1964, abandoned. This application Feb. 27, 1968, Ser. No. 708,587

Int. Cl. B05c *11/14*

U.S. Cl. 118—503 **1 Claim**



Article manipulating means for a dip-coating operation includes a cup like holder. The holder has an inturned flange at the mouth thereof which fucntions to both grip and mask the article to be coated.

3,682,136

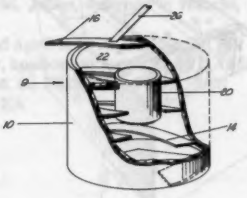
CONVEYOR FOR ELECTROPAINTING

Eugene E. Haney, Middletown, and Karl T. Bagdal, Cincinnati, both of Ohio, assignors to Armco Steel Corporation, Middletown, Pa.

Filed March 4, 1971, Ser. No. 120,959

Int. Cl. B05c *5/00*

U.S. Cl. 118—620 **19 Claims**



Apparatus for electrophoretically depositing a coating from an electrophoretic solution simultaneously on a plurality of articles including a vibratory conveyor having a helical track and arranged to contain a supply of said solution. An electrode is positioned within the vibratory conveyor concentrically with respect to the track, and spaced inwardly therefrom. A supply of electric current is arranged to oppositely charge the electrode and the vibratory conveyor so that a coating is electrically deposited upon the plurality of articles carried by the track of the vibratory conveyor.

3,682,137

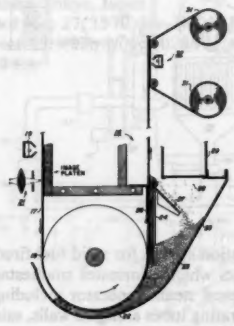
J-SHELL DEVELOPER HOUSING

Charles F. Roth, Jr., Rochester, and Gordon C. Butler, Fairport, both of N.Y., assignors to Xerox Corporation, Rochester, N.Y.

Filed Jan. 28, 1970, Ser. No. 6,609

Int. Cl. G03g *13/00*

U.S. Cl. 118—637 **5 Claims**

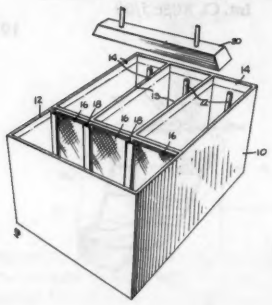


Shell developer for electrostatic imaging apparatus. The shell structure is characterized by a J-shaped configuration having disposed within the shell a partition and baffle arrangement which effects movement of carrier particles and unused toner such that they are mixed with newly dispensed toner as the former and the latter strike the baffle which is disposed above the developer supply level in the shell.

3,682,138
MATING TANK FOR CRUSTACEA

John J. Day, and Paul S. Hirschman, both of Fort Lauderdale, Fla., assignors to Ocean Protein Corporation, New York, N.Y.

Filed Dec. 24, 1969, Ser. No. 887,813
Int. Cl. A01k 61/00
U.S. Cl. 119—2 8 Claims

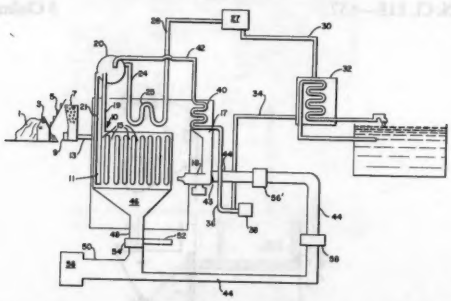


A mating tank for crustaceans, especially for decapods, having several individual compartments for females, one compartment for a male which adjoins all the female compartments, and movable porous dividing apparatus between male and female compartments for allowing the male to associate with a selected female. Light producing means encourage the females to moult. A method for effecting efficient mating.

3,682,139
ANTI-POLLUTION SYSTEM FOR SOLID FUEL-FIRED STEAM GENERATING POWER PLANTS

Paul A. B. Sahm, R.D. #2, Box 263, Homer City, Pa.

Filed June 15, 1971, Ser. No. 153,211
Int. Cl. F22b 33/00
U.S. Cl. 122—2 7 Claims

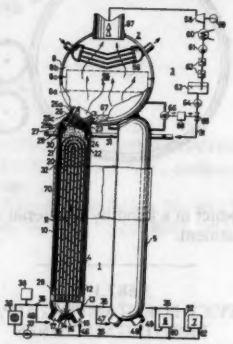


An anti-pollution system for solid fuel-fired steam generating power plants which eliminates smokestacks. The system comprises a typical steam generator including a furnace having steam generating tubes along its walls, said furnace having one or more outlets for discharge of hot gaseous products of incomplete combustion therefrom including fly-ash and means for introducing ash-containing pulverized fuel and combustion air into a portion of said furnace remote from said outlet for combustion of said fuel, an ash pit below said furnace, an ash settling pond, means for flushing ash from said ash pit to said ash settling pond, and pump and conduit means connecting said outlet with said ash flushing means for passing said hot gaseous other products and combustion from said furnace outlet to said settling pond.

3,682,140
VAPOR GENERATING PLANT

Josua Roffler, Winterthur, Switzerland, assignor to Sulzer Brothers, Ltd., Winterthur, Switzerland

Filed April 13, 1970, Ser. No. 27,810
Claims priority, application Switzerland, April 15, 1969, 5646/69
Int. Cl. F22b 1/02
U.S. Cl. 122—34 8 Claims

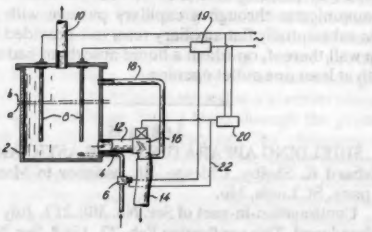


A plurality of vapor generators are connected in common to a single water separator. Collars are used to connect the generators to the separators and the collars can be welded together in the field. The water which is separated out in the separator is returned to the vapor generators and mixed in with the cold feed water.

3,682,141
STEAM GENERATORS

Birger Johan Walther Johansen, Aarhus, Denmark, assignor to Birton Klimaog Koleteknik A/S, Mariedalsvej/truevej, Brabrand, Denmark

Filed Sept. 2, 1970, Ser. No. 68,844
Int. Cl. F22d 5/00
U.S. Cl. 122—451 R 7 Claims

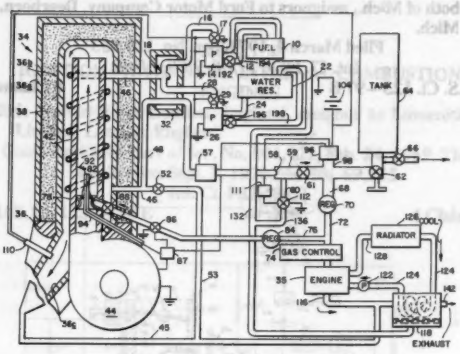


A steam generator particularly for producing steam to be supplied to a flow of ventilation air for increasing the humidity thereof, comprising a water container, means for heating the water in the container in order to produce steam, means for supplying water to the container for replacing the water leaving the container as steam, means for intermittently draining off the water from the container so as to empty it for water with high mineral concentration in order to avoid or reduce permanent precipitations, the water inlet opening being spaced from the drain opening of the container and being located so as to cause agitation of the bottom water in the container when water is let thereinto. Preferably the valves are automatically operated in such a manner that the inlet valve is kept open when the draining valve is open whereby the bottom water with its precipitations is agitated during the draining operation.

3,682,142
METHOD AND MEANS FOR GENERATING HYDROGEN AND A MOTIVE SOURCE INCORPORATING SAME

Marc S. Newkirk, Lynnfield, Mass., assignor to International Materials, Lynnfield, Mass.

Filed May 6, 1971, Ser. No. 140,858
Int. Cl. F02b *43/08, 63/00, 75/12*
U.S. Cl. 123—3 20 Claims

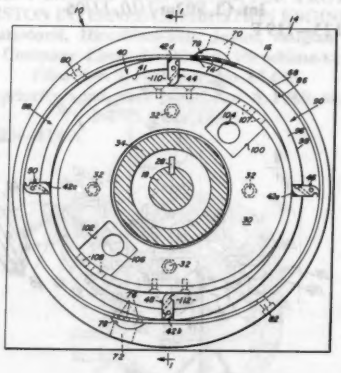


A hydrogen generation system mixes a liquid hydrocarbon fuel with water and heats the mixture sufficiently to thermally decompose the mixture to obtain hydrogen gas. This gas is then fed to an internal combustion engine capable of running on such gas. The engine generates exhaust products, consisting principally of water which is recycled back for mixing with the hydrocarbon fuel and carbon dioxide which is not considered a pollutant.

3,682,143
CYLINDRICAL ROTOR INTERNAL COMBUSTION ENGINE

Lawrence E. Leas, Simi, Calif., assignor to Leas Brothers Development Corporation, Columbia City, Ind.

Filed June 3, 1970, Ser. No. 43,005
Int. Cl. F02b *53/00*; F01c *11/00*
U.S. Cl. 123—8.43 14 Claims



An engine comprised of a casing having an elliptical chamber, a stator within said casing having an elliptical periphery spaced from said casing, a cylindrical rotor between said casing and said stator having an outer surface defining first and second crescent-shaped chambers with said casing and having an inner surface defining third and fourth crescent-shaped chambers with said stator, sets of vanes slidably received in said rotor and cooperating with the interior surface of said stator and casing to sequentially form intake, compression, combustion and exhaust chambers therebetween, fuel inlet passageway through said casing communicating with said combustion chamber, and an air inlet passageway through said casing communicating with said intake chamber.

3,682,144
CONTROL DEVICE FOR FUEL SUPPLY IN INTERNAL COMBUSTION ENGINES

Seiji Suda, Hitachi, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

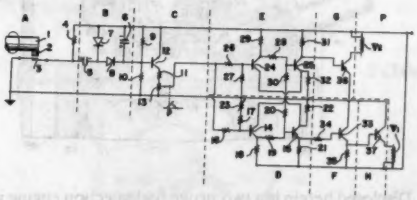
Filed April 1, 1970, Ser. No. 24,759
Claims priority, application Japan, April 2, 1969, 44/24763
Int. Cl. F02b *3/00*; F02m *51/00*
U.S. Cl. 123—32 EA 8 Claims

In a device wherein a solenoid valve is located at an inlet stub of each cylinder of an internal combustion engine and wherein a time width of a current to be supplied to the solenoid valves is controlled thereby to control the amount of fuel to be supplied to each cylinder, a high current is caused to temporarily flow through an electromagnetic winding at a moment when the solenoid valve is intended to be opened, while thereafter the current flowing through the electromagnetic winding is reduced to a holding current of the solenoid valve (or a slightly higher current than the holding current) whereby the response of the solenoid valve upon closure is improved.

3,682,145
FUEL CONTROLLING DEVICE FOR INJECTION TYPE INTERNAL COMBUSTION ENGINES

Yoshio Ohtani, Matsuyama, Japan, assignor to Diesel Kiki Kabushiki Kaisha, Tokyo, Japan

Filed May 27, 1970, Ser. No. 40,884
Int. Cl. F02b *3/00*; F02d *11/10*
U.S. Cl. 123—32 EA 1 Claim



A fuel controlling device for injection type internal combustion engines which is simple in construction, small in size, and accordingly adapted for use in vehicles, being capable of detecting the variation of rotational speed of the engines electrically and converting such variation into mechanical displacement thereby operating a fuel regulating part by means of a hydraulic pressure servo-motor.

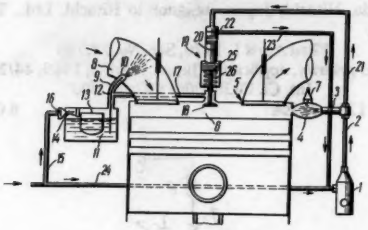
3,682,146

SYSTEM OF FUEL INJECTION AND PRECOMBUSTION-CHAMBER SPRAY IGNITION IN PISTON AND ROTARY-PISTON INTERNAL COMBUSTION ENGINES

Nikolai G. Mozokhin; Konstantin Mikhailovich Maskenskov, both of Gorky; Niyazi Abdulkasim Ogly Kerimov, Baku; Zuleikha Ismial Kyzy Guseinova, Baku; Rafik Isrofil Ogly Mekhtiev, Baku, and Garri Voldemarovich Evart, Gorky, all of U.S.S.R., assignors to Gorkovsky Automobilny Zavod, Gorky, U.S.S.R.

Filed March 4, 1971, Ser. No. 120,844

U.S. Cl. 123—32 SP 4 Claims



A system of fuel injection and precombustion-chamber spray ignition in piston and rotary-piston internal combustion engines is provided with a nozzle disposed in the precombustion chamber of the engine and connected to a fuel pump, and a jet pump connected to a tank filled with fuel that is provided with a device for maintaining a preset level in it. The tank and the jet pump are connected to the combustion chamber of the engine by a duct in which a shut-off valve is installed for tapping gas from the combustion chamber to the jet pump and tank, the valve having a drive functioning synchronously with the delivery of fuel by the fuel pump.

3,682,147

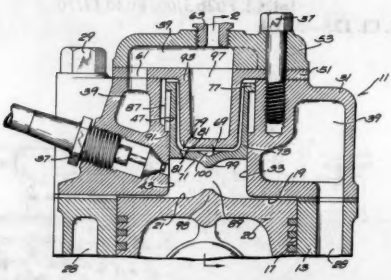
TWO STROKE FUEL INJECT ENGINE WITH SCAVENGED PRE-COMBUSTION CHAMBER

Finn T. Irgens, Milwaukee, Wis., assignor to Outboard Marine Corporation, Waukegan, Ill.

Filed Aug. 7, 1970, Ser. No. 61,925

Int. Cl. F02b *75/04, 75/02*

U.S. Cl. 123—48 R 12 Claims



Disclosed herein is a two stroke fuel injection engine including a closed auxiliary cylinder extending from the head end of a main cylinder, together with an auxiliary piston which is movable in the auxiliary cylinder between an extended position adjacent to the main cylinder when the piston in the main cylinder is at bottom dead center and a retracted position remote from the head end of the main cylinder when the piston in the main cylinder is adjacent to top dead center position. Between the piston in the main cylinder and the auxiliary piston when in its retracted position, there is defined an initial or precombustion chamber which communicates with a fuel injection means and which is scavenged by movement therethrough of the auxiliary piston during travel from the retracted to the advanced position.

3,682,148

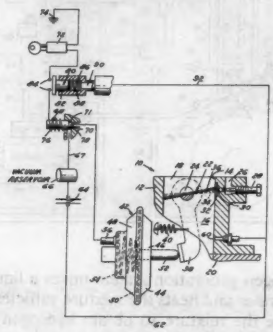
CARBURETOR THROTTLE VALVE POSITIONER

Robert S. Harrison, Detroit, and Max W. Lunsford, Southfield, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed March 4, 1971, Ser. No. 120,953

Int. Cl. F02d *11/08, 9/00, 11/08*

U.S. Cl. 123—97 B 8 Claims



A downdraft type carburetor has an idle system discharge port that is straddled by the idle speed and closed throttle positions of the throttle valve so as to permit idle speed fuel and air flow in one position and no flow in the other position; the two positions being controlled by a servo operatively engaging the throttle valve; the servo operation being controlled by intake manifold vacuum during engine deceleration operation to close the throttle valve, or upon engine shut off interrupting the ignition circuit to close the throttle valve with a subsequent return of the throttle valve to its curb idle position for engine restarting.

3,682,149

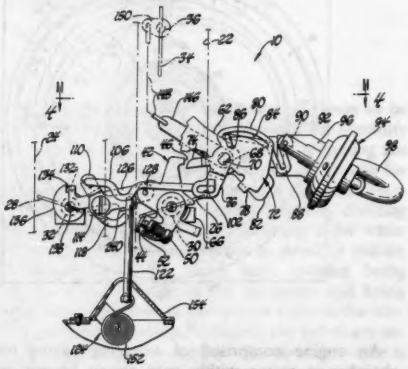
THROTTLE LOCK-OUT ARRANGEMENT

Robert D. Mitchell, 1291 Beaupre St., Madison Heights, Mich.

Filed Aug. 19, 1970, Ser. No. 65,173

Int. Cl. F02m *1/10, 11/06*

U.S. Cl. 123—119 F 10 Claims



A carburetor assembly having primary and secondary in-

duction passages or bores with primary and secondary throttle valves respectively situated therein and a choke valve in the inlet of the primary induction passage, has linkage means interconnecting the primary and secondary throttle shafts and valves so as to enable the opening and closing thereof in response to operator demands; additional thermostatically controlled latching means are provided so as to prevent the opening of the secondary throttle valve until the choke valve is fully opened and a predetermined engine temperature has been attained.

3,682,150

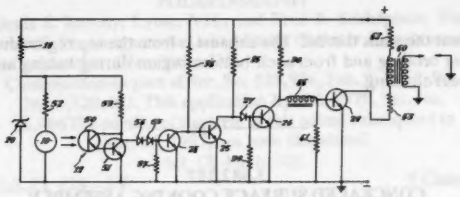
IGNITION SYSTEMS FOR INTERNAL COMBUSTION ENGINES

Eric Harold Ford, London, England, assignor to Lumenition Limited, London, England

Continuation-in-part of Ser. No. 801,721, Feb. 24, 1969. This application Sept. 3, 1970, Ser. No. 69,325

Int. Cl. F02p *3/02*

U.S. Cl. 123—148 E **4 Claims**



In an ignition system for an internal combustion engine the provision of a device for fast switching the primary circuit having a solid state radiation source, a radiation sensitive element, the radiation path being interrupted in timed relation to the engine revolutions, and a transistorized ignition circuit including an amplifier whose transistors are arranged in cascade to switch in inverse relation to one another, a power transistor connected to the output of the amplifier to fast switch the primary circuit of the ignition coil so as to produce the ignition spark every time the radiation is cut off, and energy storage means associated with the power transistor to reduce voltage spikes induced in the primary circuit.

3,682,151

EXHAUST GAS RECYCLE SYSTEM FOR A ROTARY PISTON INTERNAL COMBUSTION ENGINE

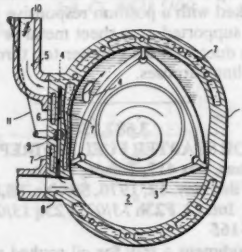
Yasuo Tatsutomi, Hiroshima-ken, Japan, assignor to Toyo Kogyo Company Limited, Aki-cun, Hiroshima-ken, Japan

Filed Nov. 9, 1970, Ser. No. 87,668

Claims priority, application Japan, Nov. 8, 1969, 44/106062

Int. Cl. F02b *33/00*

U.S. Cl. 123—119 A **1 Claim**



A rotary piston internal combustion engine having a three or more apexed rotary piston moving in planetary motion within a casing formed by a center wall having a trochoidal inner peripheral surface and end walls disposed at both sides of the center wall and intake and exhaust passages provided in the end wall and/or center wall includes a conduit communicating between the intake and exhaust passages. The conduit is disposed in the neighborhood of the engine coolant jacket within the casing and a control valve opening and closing in response to the operating states of the engine is disposed in the conduit within the casing and the recycling exhaust gas and control valve are cooled by the engine coolant.

3,682,152

INSTALLATION FOR CONTROLLING A COMBUSTION ENGINE

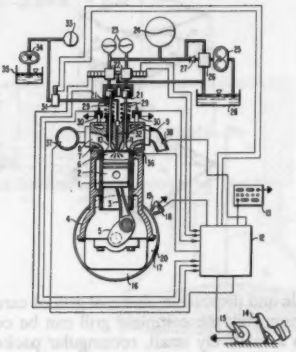
Alfred Hermann Muller-Berner, Waiblingen, Germany, assignor to Daimler-Benz Aktiengesellschaft

Filed March 27, 1970, Ser. No. 23,281

Claims priority, application Germany, March 28, 1969, P 19 16 167.2

Int. Cl. F02b *29/08*

U.S. Cl. 123—140 MC **42 Claims**



An installation for the control of an internal combustion engine, particularly for motor vehicles, in which the opening of the inlet and outlet valve as well as the fuel supply takes place dependent on the phase angle of the crankshaft; an electronic control apparatus is provided which is adjustable by means of the drive pedal; the electronic control apparatus includes a device for detecting the phase angle of the crankshaft and is connected to the actuating mechanisms for the inlet and outlet valves as well as for the fuel injection.

3,682,153

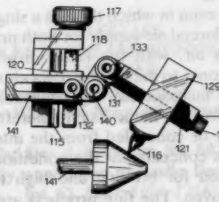
WHEEL DRESSING FIXTURE

Andrew Weining, 1317 Lynn St., Erie, Pa.

Filed Sept. 11, 1970, Ser. No. 71,602

Int. Cl. B24b *53/04*

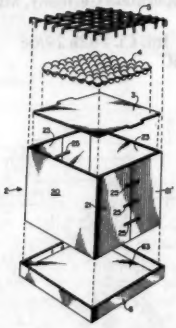
U.S. Cl. 125—11 B **2 Claims**



A grinding fixture for dressing a grinding machine wheel is disclosed herein. The fixture is provided with a circular collar

which receives a circular end of the grinding wheel motor and clamp screws clamp the fixture in place on the motor. The fixture has a tool supporting bracket that is adjustable perpendicular to the axis of the rotation of the wheel on dovetail type ways and the tool is adjustable on the bracket by means of a bar rectangular in cross section which is fixed to the bracket. A washer is attached to the outer end of the bar to limit the outward movement of the bracket and felt disks are clamped in place on the tool support to wipe the bar clean of foreign matter.

3,682,154
PORTABLE DISPOSABLE CHARCOAL GRILL
George A. Mollere, 13350 Dwyer Rd., New Orleans, La.
Filed Aug. 21, 1970, Ser. No. 65,882
Int. Cl. F24b *3/00*; F24c *1/16*
U.S. Cl. 126—9 A **2 Claims**

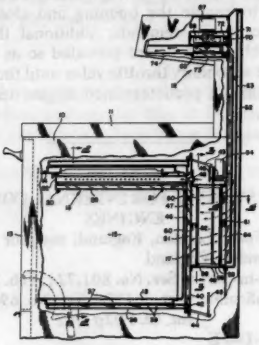


A portable and disposable charcoal grill of cardboard lined with aluminum foil; the complete grill can be collapsed and provided in a relatively small, rectangular package with the elements nested together and can be quickly and easily assembled; the bottom of the unit can be used as a food warmer-oven while the top is used for barbequeing; the basic body of the grill can be collapsed flat because of opposing vertical folds provided within its sides.

3,682,155
Patent Not Issued For This Number

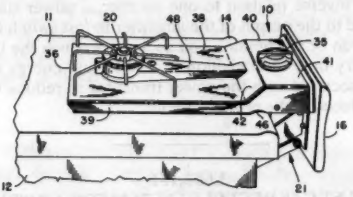
3,682,156
GAS OVEN
Richard L. Perl, 758 Betner Dr., Mansfield, Ohio
Continuation-in-part of Ser. No. 638,108, May 12, 1967, abandoned. This application May 14, 1970, Ser. No. 37,257
Int. Cl. F24c *15/32*
U.S. Cl. 126—21 A **27 Claims**

A gas cooking oven in which there is a single top burner assembly having a forced air supply for both primary and secondary combustion air, with the latter directed at the combustion zone or zones to minimize excess air requirement. The burner assembly includes baffling adjustable relative to the burner ports so that the flame issuing therefrom can be selectively exposed to or concealed from the interior of the oven cavity, with such concealment the condition for baking and the flame exposed for broiling and high temperature heat cleaning of the oven. The flue products are exhausted from the oven through a heat exchanger, such as a rotating regenerator drum, for preheating of the incoming air, either substantially directly from the top exterior region of the oven or from the bottom exterior after such products flow through a wrapper spaced about the outer periphery of the oven liner to



heat the walls thereof. The exhaust is from the top region during broiling and from such bottom region during baking and heat cleaning.

3,682,157
CONCEALED SURFACE COOKING ASSEMBLY
Richard L. Perl, Mansfield, Ohio, assignor to The Tappan Company, Mansfield, Ohio
Filed Sept. 30, 1970, Ser. No. 76,721
Int. Cl. F24c *3/00*
U.S. Cl. 126—37 B **9 Claims**

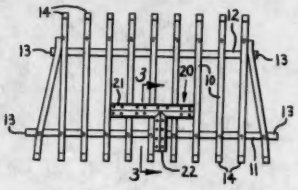


A concealed gas burner is stored in an enclosure beneath a counter and moved to an operative position on top the counter through horizontal and vertical displacement of same. A slidable carriage and parallelogram linkage allow such movement and maintain paralllelism of the burner unit, the flow of gas being accommodated with a flexible conduit and being interlocked with a position responsive valve, for safety. The burner is supported on a sheet metal or die cast channel which forms a duct with the counter top through which air is forced for cooling purposes.

3,682,158
HOLDER FOR STARTER FUEL IN FIREPLACE GRATE
David L. Thomas, Box 417, Toledo, Wash.
Filed Nov. 12, 1970, Ser. No. 88,824
Int. Cl. F23h *13/02*; F23q *13/04*
U.S. Cl. 126—165 **3 Claims**

In one embodiment a tray for oil soaked sawdust is incorporated in the grate. The fire from this starter fuel ignites logs on the grate without resorting to paper and kindling. In a modification the tray is made as an accessory device equipped

with hooks to hang under a conventional grate without any modification of the grate. In either case the tray is constructed

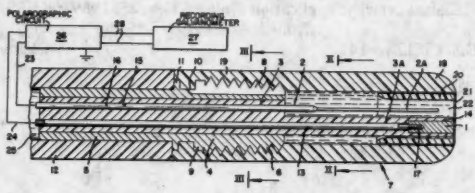


as a T-shaped trough having a branch extending forward to a conveniently accessible position for igniting the starter fuel with a match.

3,682,159
CATHETER ELECTRODE FOR OXYGEN POLAROGRAPHY

Denis S. Imredy, Lyme, N.H., and Fred P. Schleipman, Norwich, Vt., assignors to United States Catheter & Instrument Corporation, Glens Falls, N.Y.

Continuation-in-part of Ser. No. 525,926, Feb. 8, 1966, Pat. No. 3,528,403. This application April 6, 1970, Ser. No. 26,006The portion of the term of this patent subsequent to Sept. 15, 1987, has been disclaimed.
Int. Cl. A61b *5/00*
U.S. Cl. 128—2 E **9 Claims**

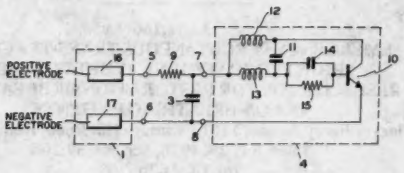


A minature electrode comprising cathode, anode, electrolyte and oxygen-permeable diaphragm, with a shell and housing adapted for secure attachment to the end of a catheter, to be introduced into positions where in vivo oxygen tension determinations can be made in blood or other body fluids.

3,682,160
PHYSIOLOGICAL SIGNAL TRANSMITTER FOR USE INSIDE THE BODY

Norio Murata, Hirakata-shi, Japan, assignor to Matsushita Electric Industrial G. Ltd., Kadoma, Osaka, Japan

Filed Oct. 16, 1969, Ser. No. 866,818
Int. Cl. A61f *5/00*
U.S. Cl. 128—2 P **17 Claims**

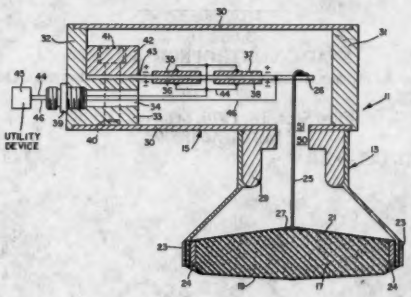


A miniature medical transmitter detects a physiological variable in a human body and transmits a signal to a receiver placed at the outside of a human body, more particularly to an orally swallowable minature transmitter for measuring pH value or any other variable in a gastro-intestinal tract. The transmitter comprises detecting means for generating a voltage relating to a physiological variable in a human body, limiting network means, a storing capacitor and oscillator means, and its operation is based on an arrangement wherein the voltage from the detecting means activates the oscillator means and, at the same time, modulates the oscillator means. Accordingly, the transmitter does not require conventional power supply means such as battery means and external energy sender means placed outside the body.

3,682,161
HEARTBEAT TRANSDUCER FOR A MONITORING DEVICE

Vernon F. Alibert, Ivy Lane, Chester Heights, Pa.

Filed Feb. 20, 1970, Ser. No. 13,051
Int. Cl. A61b *5/02*
U.S. Cl. 128—2.05 S **5 Claims**



The present device is a means for monitoring or listening to a heartbeat which provides an acoustical impedance to the nose generated at the area of contact between the present device and the human and/or animal body, thereby virtually eliminating such noise. In addition, the present device provides a transducer of high sensitivity which translates each heat of the heart into a meaningful signal so that each beat propogated as a force (pressure or strain) pulse can be monitored dynamically (through ear phones or the like) and/or graphically (through a cathode ray tube, a responsive pen writing on a roll of graph paper or on a suitable daylight projection and enlarging system).

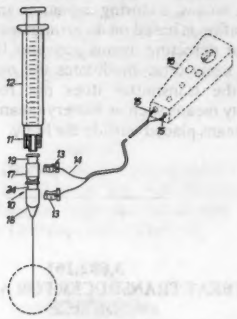
3,682,162
COMBINED ELECTRODE AND HYPODERMIC SYRINGE NEEDLE

John E. Colyer, Longueville, New South Wales, Australia, assignor to The Wellcome Foundation Limited, London, England

Filed Dec. 4, 1969, Ser. No. 882,314
Claims priority, application Australia, Dec. 13, 1968, 47787
Int. Cl. A61b *5/04*, *17/40*
U.S. Cl. 128—2.1 R **8 Claims**

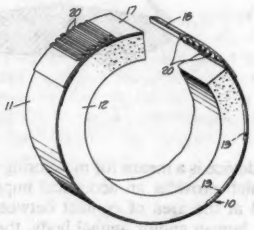
A hypodermic needle for connection with a hypodermic syringe attachment and which comprises at least two electrode

elements, an inner one of which conveys fluid as a conventional hypodermic needle and the two of which combine as a



probe having a tip-end stimulation zone when connected with an electrical supply.

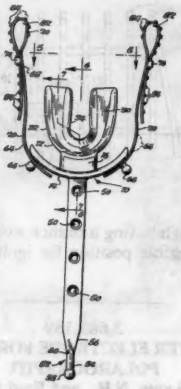
3,682,163
SNAP-ON ORTHOPEDIC SPLINT
Walter A. Plummer, 3546 Crownridge Drive, Sherman Oaks, Calif.
Filed Sept. 18, 1970, Ser. No. 73,370
Int. Cl. A61f 5/04
U.S. Cl. 128—87 R **1 Claim**



A light-weight, semi-rigid, snap-on orthopedic splint having a flexible sheet plastic main body laminated to a thick spongy layer and equipped with long shallow channels for the insertion of flexible reinforcing splints. The edges of the main body are provided with a suitable adjustable fastener as one having a multiplicity of L-shaped ribs which interlock selectively in different overlapped positions as necessary to form a snug fit with a limb or any part of the body and notched crosswise of the ribs to adapt the splint for assembly about a tapering portion of the body as a limb.

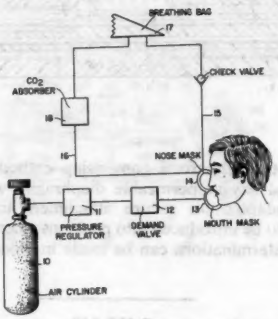
3,682,164
PROTECTIVE MOUTHPIECE
Glenn O. Miller, Tonawanda, N.Y., assignor to Shield Mfg. Inc., Buffalo, N.Y.
Filed Feb. 9, 1970, Ser. No. 9,621
Int. Cl. A61c 7/00; A42b 3/02
U.S. Cl. 128—136 **13 Claims**

A protective mouthpiece having a mouthguard and a lip shield separated by a web member formed integral therewith. The mouthpiece is formed of a thermoplastic material adapted to be custom-fitted to the individual's mouth and lip formation. A pair of strap members are attached to opposite ends of



the lip shield for securing the mouthpiece to connecting portions of a protective headgear.

3,682,165
METHOD FOR SUPPLYING OXYGEN TO A DIVER
Erik Eklund, Karjaa, Finland
Filed Feb. 20, 1970, Ser. No. 13,161
Claims priority, application Finland, Feb. 25, 1969, 583/69
Int. Cl. A62b 7/02
U.S. Cl. 128—142 **9 Claims**



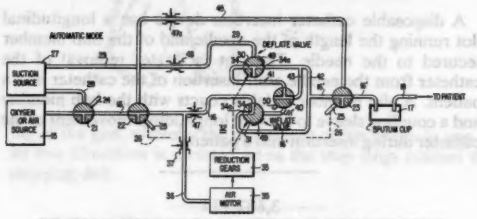
Method and apparatus for supplying breathing gas to a person in a pressurized environment when a given dose of gas is recirculated in a closed breathing system a predetermined number of times and is then expelled and replaced with a new dose. The number of rebreaths is found as a function of the pressure of the environment.

3,682,166
EMERGENCY PERCUTANEOUS TRANS-TRACHEAL HIGH FLOW OXYGEN CATHETER-TYPE RESUSCITATOR FOR RESTORATION OF BREATHING IN NON-BREATHING PATIENTS
Harvey Barry Jacobs, 11613 Vantage Hill Road, Reston, Va.
Filed July 29, 1970, Ser. No. 59,206
Int. Cl. A62b 7/00
U.S. Cl. 128—145.8 **15 Claims**

An emergency percutaneous trans-tracheal high flow oxygen resuscitator of the catheter type which restores breathing to a non-breathing patient comprising a soft plastic catheter

molded from non-pyrogenic thermoplastic material such as polyethylene, polytetrafluorethylene, polypropylene, polycarbonate or other readily sterilized, orientable material which is precurved at its long tubular bottom portion for proper positioning in the median axis of the trachea after straight insertion by means of a cooperating, interiorly positioned hypodermic needle through the crico-thyroid membrane of the patient. The catheter has outwardly projecting wing portions at the top collar portion, the collar accommodating a suction tube or an oxygen tube after the needle is removed. Suction aids in the exhale phase of ventilating the lungs.

Ventilating apparatus is provided for connection to the



catheter. The apparatus comprises cyclically operated valve means for selectively connecting the catheter to a source of compressed oxygenated gas or to a source of vacuum for inflation and deflation in the breathing cycle. Other valve means are provided to vary the ratio of inflation and deflation phases during a cycle. The cyclically operated valve means are driven by air motor means powered by the compressed gas. Another set of valves is provided whereby the cyclically operated valve controlled conduit system is bypassed and the catheter may be selectively connected to the oxygenated gas or to the suction source by a manually operated valve in accordance with the requirements of the condition of the patient.

3,682,167

MEDICAMENT INJECTOR FOR NEBULIZER

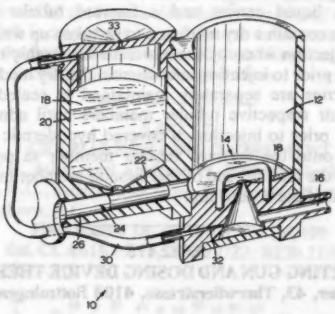
Nikodem N. Urbanowica, 151 Albion Street, Brantford, Ontario, Canada

Filed June 4, 1970, Ser. No. 43,469

Claims priority, application Canada, June 13, 1969, 054,245

Int. Cl. A61n *11/02*

U.S. Cl. 128—194 **4 Claims**



This invention is a device for supplying medicament to a nebulizer at the rate of consumption of the medicament by the nebulizer for the purpose of avoiding the objections of contamination of the medicament as it is nebulized and of insuring that the concentration of the medicament remains constant as it is nebulized. The invention achieves its objective by providing a medicament chamber that communicates with the nebulizer through a metering passage and pneumatic means for forcing medicament from the medicament chamber through the metering passage that is responsive to the demand of the nebulizer.

3,682,168

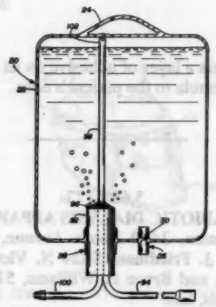
STERILE LIQUID ENTRAINING SYSTEM

David W. Deaton, Dallas, Tex., assignor to Ahldea Corporation, Dallas, Tex.

Filed June 10, 1970, Ser. No. 44,929

Int. Cl. A61m *15/00*

U.S. Cl. 128—194 **7 Claims**



In a sterile liquid entraining system, a liquid is fed to a vapor generator from a collapsible liquid container. Initially, the container is sterilized and is filled with a sterile liquid. Then, a vapor generator, which may comprise either a humidifier or a nebulizer, is connected to the container through one of two normally sealed ports secured to the bottom of the container. As the liquid flows from the container to the vapor generator, the container gradually collapses. This prevents contact between the interior of the container and the atmosphere, and thereby prevents contamination of the sterile liquid in the container by microorganisms in the atmosphere.

3,682,169

Patent Not Issued For This Number

3,682,170

Patent Not Issued For This Number

3,682,171

NASAL CANNULA

Carmelo P. Dali, Niles, and Walter T. Szempruch, Chicago, both of Ill., assignors to Baxter Laboratories, Inc., Morton Grave, Ill.

Filed March 31, 1971, Ser. No. 129,726

Int. Cl. A61m *15/08*

U.S. Cl. 128—206 **12 Claims**

Nasal cannula device molded of a soft, flexible material includes a tubular member which supports a pair of integral cannula extensions. Openings at each end of the tubular member provide alternative connection points for an oxygen supply

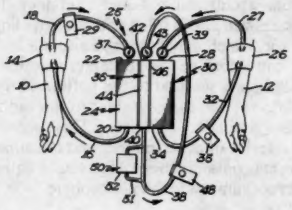
tube. An arch-like nose bridge engageable band member integrally attached to the tubular member outwardly of the cannula extensions has a layer of adhesive on its under surface for anchoring the cannula to the patient's nose.

3,682,172

PARABIOTIC DIALYSIS APPARATUS

Frank B. Freedman, 3430 Boone Avenue, S., Minneapolis, Minn.; Julius J. Friedman, 5824 N. Victoria Drive, Indianapolis, Ind., and Bruce P. Williams, 5125 W. 10th-Apt. 34, Indianapolis, Ind.

Filed Jan. 4, 1971, Ser. No. 103,547
Int. Cl. A61m *01/03*
U.S. Cl. 128—214 B 25 Claims



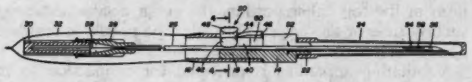
Parabiotic dialysis apparatus which may be safely used with humans is disclosed. Three chambers are fluidically interconnected yet separated by two membranes to enable safe and efficient transfer of substances between the blood of two organisms. One chamber is arranged to be connected into the blood circulation system of a normal human. A second chamber is arranged to be connected into the blood circulation system of a diseased human. A third chamber is arranged to hold physiological fluid. The chambers are arranged with the third chamber between the first and second chambers, and the membranes are arranged with one membrane forming the fluid boundary between the first chamber and the third chamber and the second membrane forming the fluid boundary between the second chamber and the third chamber to thus provide a fluid path from the first chamber to the second chamber which fluid path can transfer substances to and from the first and second chambers across the membranes and third chamber due to diffusion. The third chamber further allows a continual monitoring for membrane failure, and provides sufficient time to enable system operation to be stopped before a transfer of undesirable substances between the humans could occur due to such membrane failure. Apparatus for performing such continual monitoring is described.

3,682,173

SEPARABLE CATHETER INSERTION DEVICE

John L. Center, Dallas, Tex., assignor to Vicra Sterile, Inc., Dallas, Tex.

Filed Oct. 16, 1970, Ser. No. 81,458
Int. Cl. A61m *05/00*
U.S. Cl. 128—214.4 13 Claims



A disposable catheter insertion device has a longitudinal slot running the length of the needle and of the hub member secured to the needle. The slot facilitates removal of the catheter from the needle after insertion of the catheter into a patient. A clip member slidably coacts with the hub member and a coupling sleeve to prevent longitudinal movement of the catheter during insertion into a patient.

3,682,174

SYRINGE FOR INJECTION OF FRESHLY MIXED LIQUID-POWDER

Milton J. Cohen, 7111 Connecticut Ave., Chevy Chase, Md.

Filed Oct. 7, 1969, Ser. No. 864,376
Int. Cl. A61m *05/22*
U.S. Cl. 128—220 7 Claims

A syringe formed a rearward tubular member adapted to contain a liquid carrier and a forward tubular member adapted to contain a dry medicant to be taken up with the carrier for injection whereby the materials are freshly mixed immediately prior to injection and wherein the dry medicant and liquid carrier are separately maintained in sealed relation within their respective tubular members until admixed immediately prior to injection, a covered hypodermic needle is mounted onto the forward tubular member in position to penetrate the forward end of that tubular member in response to removal of the needle cup.

3,682,175

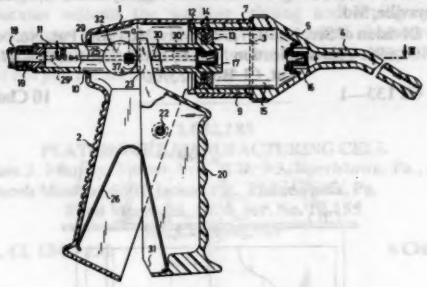
SQUIRTING GUN AND DOSING DEVICE THEREFOR

Paul Halter, 43, Therwilerstrasse, 4103 Bottmingen, Switzerland

Filed Oct. 1, 1969, Ser. No. 862,741
Int. Cl. A61d *07/00*
U.S. Cl. 128—223 20 Claims

A squirting gun serving for administration of medicinal and other liquids to animals is provided with an intake system for the liquid to be administered, the same being drawn in through

the hollow rod of a discharging piston, and with a dosing device which comprises a stop ring, on, and/or engaging the piston rod, and a stopping disk, at the inner sidewall of the cas-



ing of the gun, whereby the movement of the piston in one of its two directions is arrested when the stop rings contact the stopping disk.

3,682,176

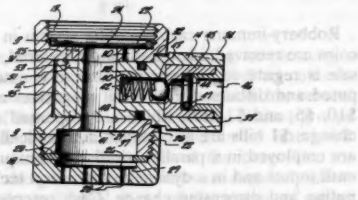
VAGINAL APPLICATOR

Arthur F. Kelsen, 11701 Foster Road, Rossmoor, Calif.

Filed March 30, 1970, Ser. No. 23,867

Int. Cl. A61m *3/00*

U.S. Cl. 128—229 **1 Claim**



A vaginal applicator for feminine hygiene is disclosed herein having a diverter valve housing formed with a central passageway extending therethrough for conducting a pressurized main fluid stream. One end of the housing is adapted for detachably mounting to a conventional water faucet while its opposite end is arranged to provide an aerated discharge. A diverter fitting is provided with a rotatable shank having a bore therethrough adapted to coextend with the central passage or to block the passageway so as to divert the fluid stream past a check valve into a length of flexible hose. The opposite end of the hose is detachably connected to a syringe unit which incorporates a push-button valve means for controlling the flow of fluid introduced to an elongated syringe for ultimate discharge from a discharge orifice.

3,682,177

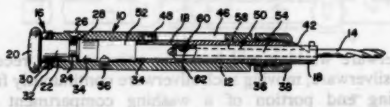
CRANIAL DRILLING INSTRUMENT

Richard H. Ames, and Amdrew W. Williams, both of Greensboro, N.C., assignors to Acme Engineering Company, Inc., Greensboro, N.C.

Filed March 18, 1970, Ser. No. 20,499

Int. Cl. A61b *17/16;* **A01b** *1/22;* **B23b** *51/00*

U.S. Cl. 128—310 **7 Claims**



A cranial drilling instrument having an adjustable guard for gauging the depth of penetration. The instrument includes a rotatable handle portion for positively locking the drill in place and a thrust bearing mounted on the handle opposite the drill.

3,682,178

Patent Not Issued For This Number

3,682,179

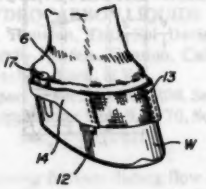
HOOF REPAIR DEVICE

Jay A. Firth, 9820 W. 86th St., Overland Park, Kans., and Carlton Power, 1501 Davis Ave., Terre Haute, Ind.

Filed May 1, 1970, Ser. No. 33,777

Int. Cl. A61d *9/00;* **A61f** *13/00;* **B68c** *5/00*

U.S. Cl. 128—336 **5 Claims**



A method for treating and repairing hooves of animals by applying room temperature moisture curing urethane resin to the hoof surface and to defects such as cracks. A device used in the method includes a flexible mesh band having a mesh portion to cover the defect or crack, and attached ties or streamers of sufficient length to encircle the periphery of the hoof so that the band may be tightly tied therearound. The room temperature moisture curing urethane resin is used in conjunction with the mesh portion, and the band is untied following cure of the resin over the mesh portion. The ties or streamers are removed leaving the mesh bonded to the hoof.

3,682,180

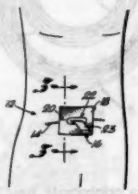
DRAIN CLIP FOR SURGICAL DRAIN

LeRoy F. McFarlane, Charles Township, Kane County, Ill., assignor to Coilform Company Inc., Geneva, Ill.

Filed June 8, 1970, Ser. No. 44,062

Int. Cl. A61m *27/00;* **A61b** *17/06;* **A44b** *21/00*

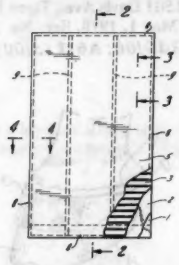
U.S. Cl. 128—350 R **8 Claims**



A drain clip and method for making a drain clip for use in circumposed relation about a surgical drain of tubular rubbery material. The clip has a) an elongate base of rigid material preferably in sheet form with a smooth main surface to be positioned in overlaying relation of an incision line and with a drain tube opening, and b) one-way gripping means on the base with a terminal surface extending into the opening and away from the smooth main surface which overlays the incision. The gripping means comprise a plurality of spaced shallow gripping teeth arranged in a pattern and defining a constricted drain passage between the teeth. When the clip is cir-

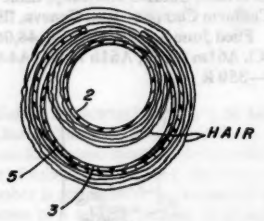
cumposed about a surgical grain extending from an incision, the drain is adapted to be advanced as the healing process takes place while retractive movement of the drain toward the incision will be resisted by the gripping means.

3,682,181
CONTROLLED HEAT RELEASE PAD
William Garrett, New York, N.Y., assignor to Flairescence Ltd., New York, N.Y.
Filed Dec. 21, 1970, Ser. No. 100,031
Int. Cl. A45d *2/00*
U.S. Cl. 132—31 R **8 Claims**



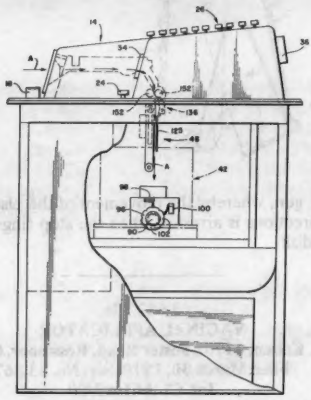
A pad, capable of formation into a roller, contains a heat generating formulation, the temperature of which can be controlled. Upon addition of water, the heat is generated at the predetermined rate for a period of time sufficient to provide a temporary setting of hair.

3,682,182
COMPOSITE HAIR CURLER
Norma Small, 1905 Mt. Royal Blvd., Glenshaw, Pa.
Filed April 7, 1970, Ser. No. 26,206
Int. Cl. A45d *2/00*
U.S. Cl. 132—40 **4 Claims**



There is disclosed a composite hair curler having an inner tubular member of smaller diameter with an eccentric ring of larger diameter at each end. An outer resilient split tubular member is removably supported on said rings. To form a tight curl on the ends of a lock of hair and a more open curl closer to the scalp, the end of a curl-forming lock of hair is first wrapped about the smaller inner member, after which the outer resilient member is put into place where it is held by its resilience on the end rings. The hair then continues to be wrapped about the outer larger-diameter split tubular roller. When the wrapping is completed, an elongated resilient bifurcated clip, resembling somewhat a large "bobby pin" is applied in the usual manner to keep the hair wrapped about the curler assembly.

3,682,183
CASH HANDLING APPARATUS HAVING A MULTI-CELL MAGAZINE
Robert D. Morrow, Baltimore, Md., and William J. Sesko, Bremerton, Wash., assignors to Technology Systems, Inc., Corkeysville, Md.
Division of Ser. No. 827,675, May 26, 1969, Pat. No. 3,608,690. This application Nov. 6, 1969, Ser. No. 874,473
Int. Cl. B65h *23/00*
U.S. Cl. 133—1 **10 Claims**



Robbery-immune cash handling system in which bills and coins are received, identified, and registered, the amount of a sale is registered and correct change is automatically computed and disbursed. Multi-cell magazines are provided for $10, $5, and $1 bills, which are dispensed automatically as change. $1 bills are also loaded automatically. Step switches are employed in a parallel addition technique for registering cash inputs and in a dynamic subtraction technique for computing and dispensing change. Cash reserves are accessible only to authorized personnel.

3,682,184
SILVERWARE WASHING AND HANDLING APPARATUS
Aldrich L. Jackson, Eustis, Fla., assignor to Dynasort Corporation
Filed June 29, 1970, Ser. No. 50,466
Int. Cl. B08b *3/02, 3/10*
U.S. Cl. 134—63 **39 Claims**

Silverware washing and handling apparatus for receiving soiled silverware, moving such silverware continuously from a receiving end portion of a washing compartment to a discharge opening of a finishing tunnel while it is automatically washed, rinsed and dried. The apparatus causes the sil-

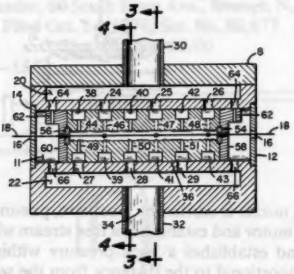
verware to assume a predetermined orientation and disperses it along its path of travel so that it leaves the discharge opening in a stream which may be sorted at high speed in a continuous sorting apparatus. The basic silverware handling portion of the apparatus without the washing, rinsing and drying components, may be used to feed previously washed silverware to a continuous sorting apparatus in a manageable stream which does not jam the sorting apparatus.

3,682,185

PLATED WIRE MANUFACTURING CELL

James J. Murray, Sunset Ave., R.D. #3, Norristown, Pa., and Jacob Mueller, 6801 Jackson St., Philadelphia, Pa.

Filed March 10, 1970, Ser. No. 18,155
Int. Cl. B08b *3/02*
U.S. Cl. 134—122 6 Claims



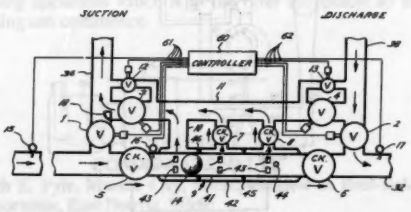
A cell suitable for plating, etching, rinsing, or cleaning a wire in a continuous wire plating operation. A fluid contacts the wire in the central bore of a diffuser which has several distinct groups of fluid inlet ducts and several distinct groups of fluid outlet ducts longitudinally offset in an interlaced sequence along the longitudinal axis of the bore. The individual ducts of the groups of inlet ducts are angularly offset with respect to the individual ducts of the groups of outlet ducts. The angular offset provides the necessary fluid swirling action for uniform plating and the longitudinal offset provides a directional fluid flow which assists the wire through the cell. A fluid stream having a directional component transverse to the longitudinal axis of the bore prevents leakage of fluid from the cell.

3,682,186

PIPELINE PUMP STATION BY-PASS

Ralph W. Howe, Houston, Tex., assignor to Helmerich & Payne, Inc., Houston, Tex.

Filed Jan. 25, 1971, Ser. No. 109,209
Int. Cl. B08b *9/04*
U.S. Cl. 137—1 22 Claims



A by-pass system and method for automatically passing a scraper by a pump station without substantially disturbing the operation thereof. The system may comprise a tubular interchange assembly installed in the main line between suction and discharge openings into suction and discharge piping. A header connected at opposite ends to the suction and discharge piping, respectively, may also be connected through a main side outlet to the interchange assembly. There may also be at least one other outlet connecting the header and interchange at a point downstream of the main outlet. Valves and controls therefor are located in the suction and discharge piping and header to switch the station inlet and station outlet to different locations so as to route an incoming scraper through the interchange and launch it downstream. Then the valves and controls are returned to normal operating positions.

3,682,187

PROCESS OF REDUCING FRICTION LOSS IN FLOWING HYDROCARBON LIQUIDS

Errol V. Seymour, Houston, Tex.; Sol Davison, Richmond, Calif., and Walter R. Haefele, Camino, Calif., assignors to Shell Oil Company, New York, N.Y.

Continuation-in-part of Ser. No. 669,708, Sept. 22, 1967, abandoned. This application Nov. 9, 1970, Ser. No. 88,243
Int. Cl. F17c *1/14*
U.S. Cl. 137—13 6 Claims

A method of reducing friction during flow of hydrocarbon liquids through conduits by addition to the liquids of a small amount of certain hydrocarbon block copolymers.

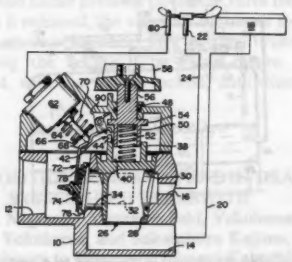
This invention relates to a method of substantially decreasing friction in flowing hydrocarbon liquids through conduits, generally over great distances. More particularly, the invention is directed to the addition of a novel class of hydrocarbon copolymers to hydrocarbon liquids such as crude oil and fractions thereof so as to reduce substantially their friction due to flow through pipelines over great and short distances.

3,682,188

LATCHING ASSEMBLY FOR A CONTROL DEVICE TO PREVENT OPERATION THEREOF PRIOR TO ELECTROMAGNET SAFETY RELEASE

Hollis L. Randolph, Lakewood, and Marvin M. Graham, Seal Beach, both of Calif., assignors to Robertshaw Controls Company, Richmond, Va.

Filed May 21, 1970, Ser. No. 39,374
Int. Cl. F23d *13/46*
U.S. Cl. 137—66 5 Claims

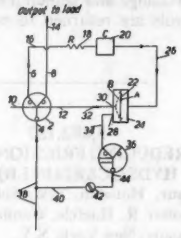


A latching assembly for a control device including a stop member disposed on a gas cock and a safety lever having a control leg adapted to abut the stop member to prevent rotation of the gas cock prior to release of an armature controlled by a safety electromagnet.

3,682,189
FLUIDIC OSCILLATOR

Zigmas J. Lapinas, 594, 84th Ave. Laval, Chomedy, Quebec, and Moses See Sum Wong, Apt. 202, 300 Joliette Street, Longueil, Quebec, both of Canada

Filed July 13, 1970, Ser. No. 54,297
Int. Cl. F15c 1/08
U.S. Cl. 137—81.5 5 Claims

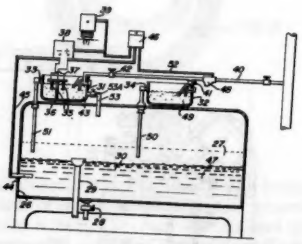


A fluidic oscillator including a bistable element, and two control inlets, one being connected to atmospheric pressure, a feedback path from a first power outlet of the bistable element to the other control inlet, said feedback path including resistive means, a fluidic chamber capacitive means in series with a isolating flexible diaphragm device whereby a sustained oscillatory output is obtained at the second power outlet of the bistable element due to its continuous switching between its two states.

3,682,190
SYSTEM FOR PRODUCING AND DISCHARGING OXIDIZERS FOR WASHING OPERATIONS

Arvind S. Patil, Silver Spring, Md.; Preston L. Veltman, Severna Park, Md.; Edwin R. Loder, Cincinnati, Ohio; Philip M. Sabatelli, Cincinnati, Ohio, and Carmen R. Sarge, Fort Thomas, Ky., assignors to W. R. Grace & Co., New York, N.Y.

Filed June 17, 1970, Ser. No. 46,941
Int. Cl. B08b 3/00
U.S. Cl. 137—93 5 Claims

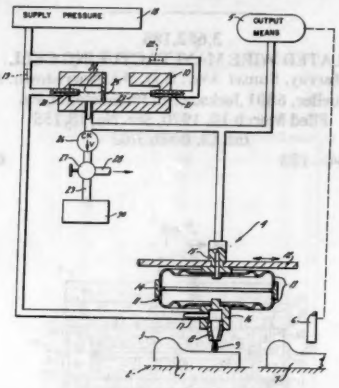


The invention disclosed is directed to a system for generating and discharging oxidizers such as sodium hypochlorite in washing operations where maintenance of a predetermined concentration of oxidizer for extended periods on a continuous and automated basis is essential for stain removal and disinfection. The oxidizer production is achieved by controlled electrolysis of suitable salts in a vessel separate from that in which the objects are washed. The supply of oxidizer to the wash solution is accomplished by a regulated overflow system.

3,682,191
APPARATUS AND METHOD FOR SENSING THE POSITION OF A SURFACE

Thomas J. Lechner, Jr., Menomonee Falls, Wis., assignor to Johnson Service Company, Milwaukee, Wis.

Filed Aug. 10, 1970, Ser. No. 62,317
Int. Cl. F15c 1/20, 3/04
U.S. Cl. 137—81.5 19 Claims

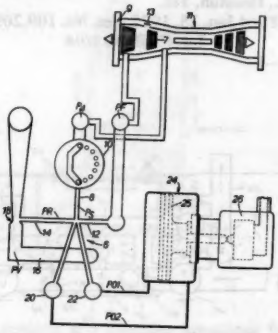


A sensing nozzle is carried by a bellows, pneumatic capsule or like fluid motor and establishes a free stream which engages a surface and establishes a back pressure within the nozzle which is proportional to the distance from the sensing nozzle to the engaged surface. A fluidic impacting stream modulator has an input nozzle connected to the sensing nozzle to establish an amplified output which is coupled to the fluid motor and repositions the sensing nozzle to maintain a constant gap between the sensing nozzle and the surface. A tapered nozzle projecting into a recess creates a signal proportional to the gap at the recess entrance. A pair of nozzles to the opposite sides of an object produces a pair of signals, the difference of which is proportional to the width of the object.

3,682,192
FLUIDIC CONTROL SYSTEMS

Guy E. Davies, Fareham, England, assignor to The Plessey Company Limited, Essex, England

Filed Aug. 20, 1970, Ser. No. 65,409
Claims priority, application Great Britain, Aug. 23, 1969, 42,117/69
Int. Cl. F15c 1/14, 1/10
U.S. Cl. 137—81.5 6 Claims



A gas turbine has a fluidic control system having a fluidic bistable element which controls a switch actuator. The vent of

the bistable element is fed to a venturi tube. The throat of the venturi tube is connected to one control inlet of the bistable element, the venturi being vented to a pressure equal to or less than the pressure applied to the inlet of the bistable element.

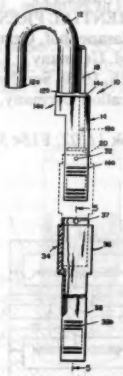
The control system is operative to trigger the actuator which in turn controls the gas turbine when the ratio of main inlet pressure of the bistable element to the pressure at the second control inlet falls below a predetermined value; the pressures being respectively taken from the high pressure compression stage and the fan stage of the gas turbine compressor.

3,682,193

SIPHONING APPARATUS

Robert Newsteder, 60 South Essex Ave., Orange, N.J.

Filed Oct. 14, 1970, Ser. No. 80,677
Int. Cl. F04f *10/00*
U.S. Cl. 137—151 **5 Claims**



A siphoning apparatus including a hollow water conducting member having one end which can be placed in an aquarium tank and another end which can be placed in a filter receptacle. Water intake means is located at the end which is placed in the aquarium and a flapper valve is located within said water conducting member. The flapper valve is arranged so that upon being moved away from and towards the water intake means water is drawn through the water intake means into the water conducting member and to the end of the siphoning apparatus which is in the filter receptacle so that siphoning can commence.

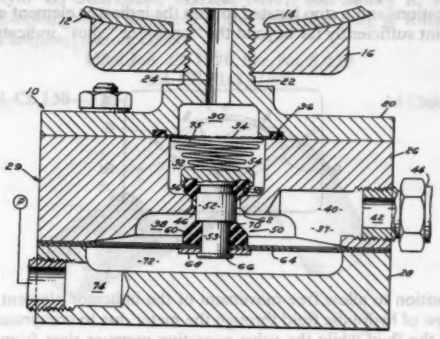
3,682,194

CONDENSATE VALVE

Kenneth E. Pyle, Marine City, Mich., assignor to Reef-Baker Corporation, East Detroit, Mich.

Filed April 24, 1970, Ser. No. 31,649
Int. Cl. F16t *1/00*
U.S. Cl. 137—204 **1 Claim**

The condensate valve comprises a housing having a chamber for the accumulation of liquid, and a double-acting valve for closing an outlet from the chamber. The valve is moved in one direction by fluid pressure and in the other direction by a spring when the fluid pressure is relieved.

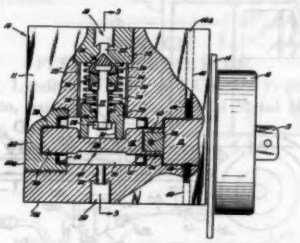


3,682,195

WHEEL LOCK FOR A VEHICLE

Dejan O. Cvetkovich, 10044 San Juan Court, Fountain Valley, Calif.

Filed Aug. 28, 1970, Ser. No. 67,713
Int. Cl. F16k *35/06*; F16k *65/32*
U.S. Cl. 137—384.6 **4 Claims**



A wheel lock designed for vehicle theft prevention and comprising valve means interposed in the brake fluid line to at least one wheel brake cylinder of the vehicle. Turning a key-lock operated camshaft urges the valve means toward the closed position, blocking fluid flow through the brake line. By simultaneously or subsequently depressing the vehicle brake pedal, brake fluid under pressure opens the valve means; when the pedal then is released, the valve means closes to trap pressurized fluid between the wheel lock and the brake cylinder, thereby locking the wheels. The valve means thereafter remains closed, with the wheels locked, until disengaged by key.

3,682,196

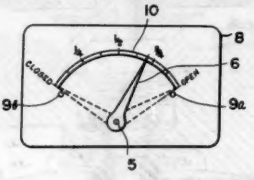
VALVE POSITION INDICATOR AND HYDRAULIC SYSTEM USED THEREWITH

Tsuguo Kosui, Nagasaki; Masahiro Seki, Yokohamashi; Shuji Takamatsu, Yokohama, and Sakusaburo Kojima, Zushi, all of Japan, assignors to Mitsubishi Jukogyo Kabushiki Kaisha; Ishukawajima-Harima Jukogyo Kabushiki Kaisha and Yuken Kogyo Company Ltd.

Filed May 13, 1970, Ser. No. 36,841
Int. Cl. F16k *37/00*
U.S. Cl. 137—553 **8 Claims**

This invention provides a flow meter type valve position indicator for use in a hydraulic valve control system having a hydraulic valve actuator and a relief valve arranged to limit

the hydraulic pressure applied to the valve actuator. The valve position indicator has an indicator element movable relative to a valve position scale having "open" and "shut" position indications and a stop located to stop the indicator element at a point sufficiently far beyond the "open" or "shut" indicating



position to allow free movement of the indicator element by flow of hydraulic fluid through the meter due to compression of the fluid while the valve operating pressure rises from its value when the valve reaches the "open" or "shut" position to the limit set by the relief valve.

3,682,197

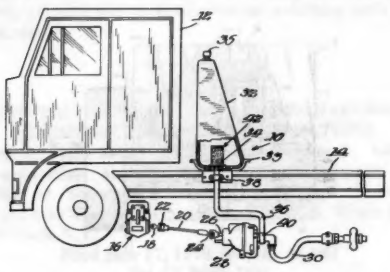
RESERVOIR ASSEMBLY

David M. Snyder, Muncie, Ind., assignor to Muncie Parts Mfg. Co., Inc., Muncie, Ind.

Filed Oct. 12, 1970, Ser. No. 79,792

Int. Cl. F15b *1/04*

U.S. Cl. 137—590 **4 Claims**



A reservoir assembly for use as a fluid storage component in systems for actuating hydraulically operated devices. An apertured diffuser is disposed within the reservoir for reducing the velocity of fluid returning to the reservoir without decreasing the rate of fluid flow. In one aspect of the invention, the reservoir assembly is made entirely of a non-corrosive material to prevent contamination of the hydraulic fluid. To this end, for example, the reservoir comprises a one piece, seamless plastic container, while the diffuser is likewise, for example, made of plastic material.

3,682,198

FLUID FLOW DIRECTION SWITCHING MEANS

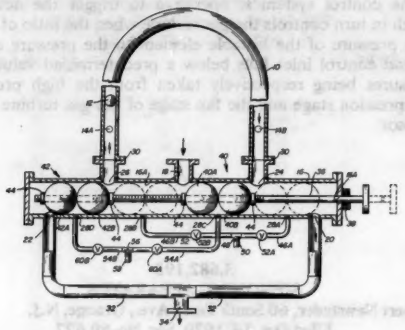
Billy Eugene Davis, 1131 East 19th St., Tulsa, Okla., and Ronald G. Dunegan, 4972 South Newport, Tulsa, Okla.

Filed Nov. 23, 1970, Ser. No. 92,005

Int. Cl. F16k *11/06*

U.S. Cl. 137—625.43 **13 Claims**

A fluid flow switching means for diverting the flow of fluid selectably in opposite directions through a measuring barrel including flow diverting cylinder means having a fluid inlet opening, a fluid outlet opening, a first measuring chamber opening and a second measuring chamber opening, plunger means axially positionable in said cylinder means operable between first and second operating positions, and a first and second seal member sealably positioned in said cylinder means and positionable by said plunger means between said openings whereby in one operating position of said plunger



means fluid is diverted out said first measuring chamber opening and in the second operating position fluid is directed out the second measuring chamber opening.

3,682,199

PNEUMATIC DIFFERENTIAL PRESSURE AMPLIFIER

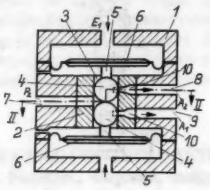
Horst Bader, Stuttgart-Fasanenhof, Germany, assignor to J. C. Eckardt AG., Stuttgard, Germany

Filed Oct. 28, 1970, Ser. No. 84,630

Claims priority, application Germany, Nov. 3, 1969, P 19 55 083.5

Int. Cl. F16k *11/02*; **F15c** *3/04, 3/06*

U.S. Cl. 137—625.48 **8 Claims**



A differential amplifier in which two balls of the same diameter are displaceable in a housing bore and control at least one outlet channel, whereby the supply channel for compressed air is disposed in the housing substantial in line with the point of contact between the two balls when the difference in pressure is zero, and at a distance from the outlet channel equal to half the diameter of a ball.

3,682,200

PISTON VALVE

Vagn Deve, 705 Valleyview Road, Pittsburgh, Pa.

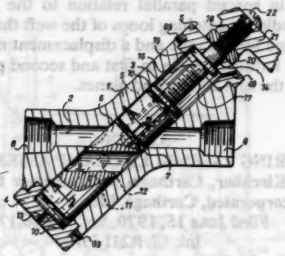
Filed Oct. 27, 1970, Ser. No. 84,375

Int. Cl. F16k *11/07, 5/04*

U.S. Cl. 137—625.47 **5 Claims**

A valve having a valve body provided with a fluid bore and a cylinder bore intersecting and oblique to each other, a piston movably mounted in the cylinder bore and a seal around the piston, said seal being perpendicular to the piston axis and therefore in an inclined plane relative to of the fluid bores, and said cylinder bore has a cross-section at least as large as the cross-section of said fluid bore, such that the inclined seal effectively seals the fluid bore when the valve is closed. The piston is prevented from rotating and has a transverse fluid passage of the same diameter as the fluid bore and arranged to

form with the latter a through bore of uniform cross-section in the valve body. A pressure fluid supply is connected to one or



both ends of the cylinder bore to move the piston between valve closing and opening positions.

3,682,201

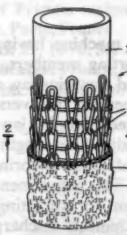
TEXTILE-REINFORCED ALL-POLYMERIC HOSE

William J. Atwell, Bloomingdale, and Lawrence Cranston, Ramsey, both of N.J., assignors to Uniroyal, Inc., New York, N.Y.

Continuation-in-part of Ser. No. 55,784, July 17, 1970. This application Sept. 22, 1970, Ser. No. 74,366

Int. Cl. F16l *11/04*

U.S. Cl. 138—125 **9 Claims**



An all-polymeric textile-reinforced hose particularly suited for pressure service, typically an all-nylon hose, and a method of making same are disclosed. The hose comprises an inner thermoplastic tube, at least one knitted layer of thermoplastic textile reinforcement, and a polymeric outer protective jacket. The innermost reinforcing layer is fused to the inner tube and any successive reinforcement layers are fused to one another. This fusion is typically accomplished by plasticizing with a resorcinol-water solution and juxtaposition of the components to be joined after which the resorcinal plasticizing agent is removed with a water bath. Before the outer polymeric jacket is applied, the assembly is plasticized with a plasticizing agent which is thereafter removed; this effects activation of the plastic in the outer knitted textile layer and such activation, coupled with the activation in the rest of the structure as a result of previous treatments with a softening agent and removal thereof, enhances the bonding of the outer jacket to the assembly.

The textile reinforcement may be constituted by synthetic multifilament yarns made of continuous thermoplastic filaments, having a total twist (including any so-called producer's or manufacturer's twist) of from 0 to 15 turns per inch, preferably from 1 to 5 turns per inch. Alternatively, but generally less preferably, the reinforcement may be formed of thermoplastic staple yarns or of so-called monofils.

3,682,202

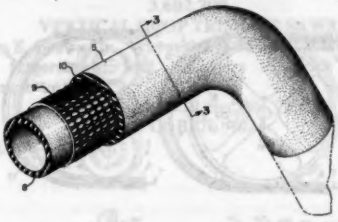
REINFORCED HOSE

Wayne H. Buhrmann, Martell, Nebr., and Sidney R. Fix, Lincoln, Nebr., assignors to the Goodyear Tire & Rubber Company, Akron, Ohio

Filed Jan. 22, 1970, Ser. No. 5,029

Int. Cl. F16l *11/08*

U.S. Cl. 138—126 **14 Claims**



An improved collapse-resistant, reinforced hose of flexible polymeric material including a semi-rigid generally circumferentially disposed supporting structure which includes preferably a single layer of textile fabric reinforcement, the major portion of which is composed of treated polyester or nylon fibers. The polyester or nylon fibers are treated with an organic polyisocyanate and preferably a solution of at least 2 percent organic polyisocyanate in a non-reactive solvent. The hose has substantially improved bursting strength and resistance to vacuum collapse without the need of additional support, such as a metal wire insert. The invention is particularly useful for flexible radiator hoses used in automotive vehicle cooling systems.

3,682,203

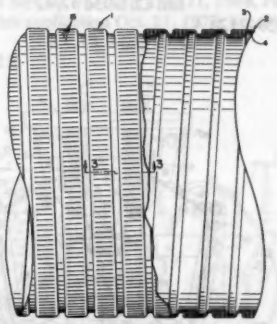
FLEXIBLE METAL HOSE

Sam J. Foti, Lyndhurst, Ohio, and Charles Y. Neff, Beachwood, Ohio, assignors to the Federal Metal Hose Corp., Parnesville, Ohio

Filed Jan. 23, 1970, Ser. No. 5,246

Int. Cl. F16s *11/16*

U.S. Cl. 138—135 **39 Claims**



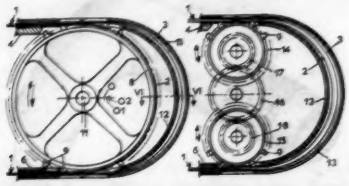
Flexible metal hose of the type formed from a helically wound metal strip with the edges of adjacent helical turns or convolution deformed to interfold slidably so that adjacent helical turns slide axially against one another to permit the hose to be flexed along its axis, wherein certain surfaces of the hose are provided with a plurality of small projections which slidably locate in a plurality of small recessions formed in certain other surfaces of the hose, the recessions being formed to impede the projections from sliding therein in directions not generally parallel to the hose axis but not to impede such sliding in the axial direction; either or both of said projections and recessions being elongated to reinforce the surfaces on which they are located against bending; and a method of forming such hose.

3,682,204

WEAVING LOOMS WITH EXTERNAL WEFT RESERVE

Raymond Dewas, 120 Boulevard de Saint Quentin, Amiens, France

Filed May 28, 1970, Ser. No. 41,269
Claims priority, application France, June 2, 1969, 6958761; Aug. 21, 1969, 6959329
Int. Cl. D03d 47/12
U.S. Cl. 139—123 6 Claims



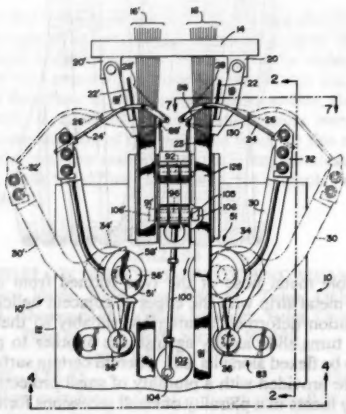
A loom with weft feed by means of bobbins located outside the shed and comprising at least one weft-inserter at one extremity of a flexible tape formed by at least two strips as well as an upper guide and a lower guide for guiding the tape along its path outside the shed and a toothed rotary system engaged with perforations of the tape in order to impart a reciprocating movement to said tape, wherein at least the strip or strips of the tape other than the inner strip are engaged with the toothed rotary system solely in the zones of the upper and lower guides so that each of said strips forms a floating loop between the outer extremities of said guides at a distance from said toothed rotary system, the successive strips being engaged over the teeth of the rotary drive system in such manner as to ensure that the perforations formed in the loops of successive strips as considered from the interior towards the exterior should increase in number between two teeth which are located respectively in said two zones.

3,682,205

NEEDLE LOOM

George W. Scott, Conneaut Lake, Pa., assignor to Textron, Inc.

Filed July 28, 1970, Ser. No. 58,894
Int. Cl. D03d 47/42
U.S. Cl. 139—124 A 2 Claims



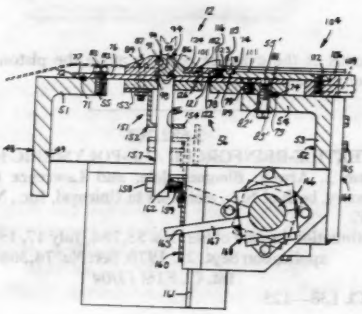
A needle loom for weaving a slide fastener element strip along the edge of a tape including a harness for providing shedding movement to a plurality of warp threads at a weaving area, a guide for supplying the slide fastener element strip to the weaving area in a substantially constant plane, a weft laying needle for carrying a weft thread through each shed formed at the weaving area, a control mechanism for alternately moving the weft laying needle through the sheds in a first plane above the guide and in a second plane below the guide and in spaced parallel relation to the first plane, a knitting needle for catching loops of the weft thread to form a selvedge edge for the tape and a displacement mechanism for moving the knitting needle to first and second positions coinciding with the first and second planes.

3,682,206

SPRING ASSEMBLER CLAMP ASSEMBLY

Carl Otto Kirchner, Carthage, Mo., assignor to Leggett and Platt, Incorporated, Carthage, Mo.

Filed June 15, 1970, Ser. No. 46,170
Int. Cl. B21f 33/04
U.S. Cl. 140—92.8 8 Claims



A spring assembly machine having two vertically spaced rows of spring supporting members, each spring supporting member having a fixed clamping jaw and a movable clamping jaw arranged for movement transversely of said rows toward and away from the fixed clamping jaw. Each of the spring supporting members is adjustable lengthwise of said rows to accommodate the manufacture of spring assemblies having different coil spacings. This adjustment can be made without moving the mechanism for actuating the movable clamping jaw. An ejector mechanism discharges the assembled coils from the clamping members and a puller mechanism thereafter moves the assembled coils away from the spring supporting members. The ejector mechanism and the puller mechanism are adjustable with the clamping members.

3,682,207

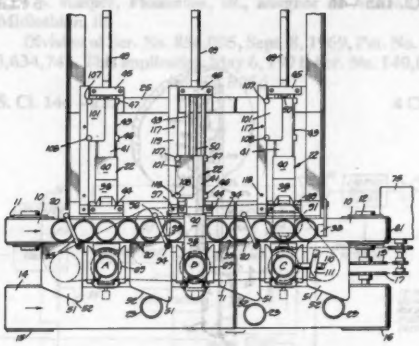
CONTAINER FILLING APPARATUS

Donn J. Rickard, Glendora; Robert F. Rohm, Fullerton, and Franklin K. Holbrook, Whittier, all of Calif., assignors to Brown International Corporation, Covina, Calif.

Filed Oct. 23, 1970, Ser. No. 83,389
Int. Cl. B65b 1/04, 3/04
U.S. Cl. 141—98 5 Claims

Container filling apparatus includes a first constantly moving conveyor belt for empty containers and a second parallel constantly moving conveyor belt for filled containers. Filling stations are located in the space between the belts and each filling station includes apparatus for rotating a can during filling and for subsequently depressing the articles loaded into the can so that none of them project above a certain level in the can. Pusher devices push empty cans laterally from the first conveyor belt and the empty cans push the filled cans laterally from the filling stations onto the discharge conveyor belt. Each pusher device automatically retracts if an empty can fails to move properly to the filling station within a predetermined time interval, and thereafter the pusher immediately moves forward again, to avoid shutoff of the supply

of empty cans to filling stations downstream from the can which failed to move properly. A device for selectively marking the outside surface of cans at certain of the filling stations avoids the requirement of a separate can supply for filling stations handling different products.

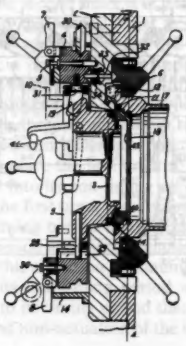


3,682,208

SAFETY DEVICE FOR INTERLOCKING SEALED ENCLOSURES

Leto Fedi, L'Etang-la-Ville; Jean Meunier, and Jean Vertut, both of Paris, all of France, assignors to Commissariat A L'Energis Atomique, Paris, France

Filed March 27, 1970, Ser. No. 23,342
Claims priority, application France, April 4, 1969, 6910571
Int. Cl. E05c *7/06*
U.S. Cl. 141—384 **12 Claims**



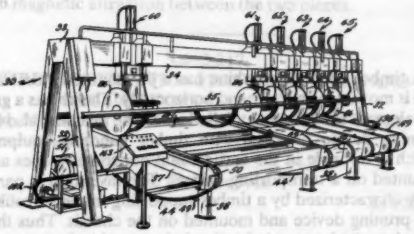
A safety device for an interlocking mechanism which permits leak-tight transfer between two sealed enclosures and which comprises a movable outer ring for applying the enclosure flanges against each other, a locking ring for interlocking the two enclosure doors, an extracting ring for releasing and opening both doors. The movable outer ring and locking ring each have a toothed sector engaged with a pinion and rotatable by means of a removable crank. The safety device comprises two shield plates for preventing removal of the crank at any time except at the beginning and end of travel of the toothed sector, a first locking member which prevents any displacement of the locking ring when the outer ring is not in the closed position, a second locking member which prevents the closure of the outer ring when the second enclosure is not present and a third locking member which prevents any rotational motion of the extracting ring when the two doors are not locked one against the other.

3,682,209

VERTICAL DROP TRIMMER SAWS

William E. Brown, Jr., Waynesboro, Pa., and William C. Dufton, Hagerstown, Md., assignors to Frick Company, Waynesboro, Pa.

Filed Sept. 14, 1970, Ser. No. 71,650
Int. Cl. B27b *5/02*
U.S. Cl. 143—41 C **14 Claims**



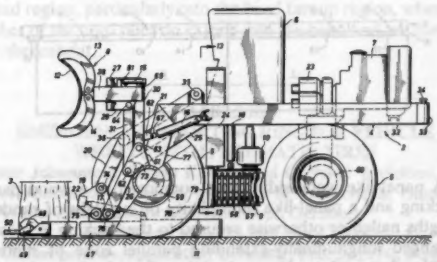
A trimmer saw apparatus having a plurality of independently operable saws mounted on a frame for generally vertical movement and being selectively operable either automatically or manually. The trimmer saws usually are spaced 2 feet apart but can be adapted to cut lumber to standard or nonstandard lengths.

3,682,210

TREE HARVESTING METHOD AND APPARATUS

Adrian L. Landers, Emmett, Idaho, and Commodore B. Byrd, Many, La., assignors to A.D.C.O. Mfg. Co., Inc., Many, La.

Division of Ser. No. 769,338, Oct. 21, 1968, Pat. No. 3,595,288. This application Oct. 21, 1970, Ser. No. 82,612
Int. Cl. A01g *23/02*
U.S. Cl. 144—2 Z **11 Claims**

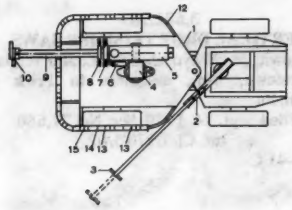


An improved self-propelled, four-wheel tree harvester is disclosed having a shear knife assembly and delimber arms mounted on its forward end, and having a gripping feedworks suspended beneath its chassis and between its wheels. The harvester operates to shear off a standing tree at ground level in one shearing stroke. After the tree falls, the harvester straddles the trunk, grips the trunk with the feedworks, and positions its delimbers about the trunk. Thereafter, the feedworks draws the felled tree through the delimber in one substantially continuous cycle of travel. The shear knife is further arranged to be rotated to a vertical and downward cutting position to cut off the top or small end of the delimbed tree.

3,682,211
TIMBER HANDLING MACHINE

Mikko Kantola, Haukilahti 5, Matinkyla, Finland

Filed Sept. 1, 1970, Ser. No. 68,705
Claims priority, application Finland, Sept. 3, 1969, 2531/69
Int. Cl. A01g 23/02
U.S. Cl. 144—3 D 7 Claims

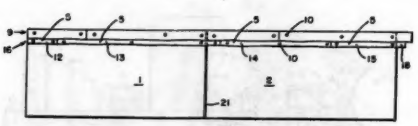


A timber handling machine has a jib mounted on a tractor and is movable vertically and horizontally. The jib has a grasping element for grabbing a felled tree. The machine also has a pruning device provided with timber handling equipment, which is turnable in the vertical and horizontal planes and is mounted on a transporting chassis. The invention is particularly characterized by a timber supporting frame surrounding the pruning device and mounted on the chassis. Thus the jib can deposit the tree it has hauled upon this frame and the pruning device can pick up this tree from the frame.

3,682,212
METHOD OF MANUFACTURING WOOD-SIDING PANELS

William B. Brewer, New Castle, Ky., assignor to Weir Magic Pit Corporation, New Castle, Ky.

Filed June 1, 1970, Ser. No. 42,286
Int. Cl. B27f 7/00; E04c 2/24
U.S. Cl. 144—318 1 Claim

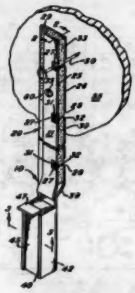


A panel-like wood-siding unit composed of a wood panel backing and a panel-like multiplicity of log-slabs of random lengths nailed or otherwise secured to the backing in closely arranged longitudinally-extending parallel rows of random widths. A manufacturing method therefor is performed by (1) placing at least two 8 foot wall back panels in close end-to-end relationship, (2) covering the back panels with log-slabs of random lengths arranged to form a multiplicity of parallel rows of random widths extending lengthwise over both back panels and over the joint line between back panels, the slabs in each row being of matched widths, (3) securing each log-slab to the underlying back panel to integrate the log-slabs and back panels into a connected pair of panel-like wood-siding units, and (4) cutting the log-slabs of that pair along the joint line between them to separate one panel-like wood-siding unit from the other.

3,682,213
NAIL PLACING IMPLEMENT

Jack Litz, 1200 Walnut Street, Philadelphia, Pa.

Filed March 17, 1971, Ser. No. 124,391
Int. Cl. B25c 3/00
U.S. Cl. 145—46 5 Claims

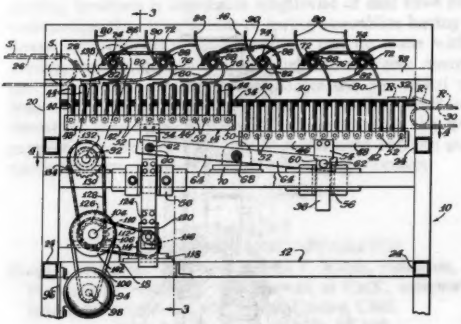


A nail placing implement is disclosed which is U-shaped in cross section and having a straight edge provided with notches.

3,682,214
ONION RING SEPARATOR

Gerald J. Orlowski, Calumet Park, Ill., assignor to Korlow Corporation

Filed Feb. 8, 1971, Ser. No. 113,469
Int. Cl. A23n 15/100
U.S. Cl. 146—1 R 5 Claims



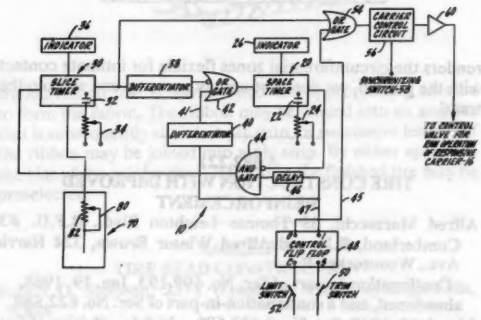
An onion ring separator for separating sliced onions into onion rings. A frame having a substantially horizontal platform mounted thereon is provided and the platform has a plurality of perforations therein. A conveyor delivers sliced onions to one end of the platform and banks of plungers pass through the perforations. The plunger banks are reciprocated in unison in the perforations so as to impart an impact force to the sliced onions so as to separate the sliced onions into onion rings. A plurality of flexible, spaced overhead arms are rotated to engage the sliced onions and the onion rings for moving them along to the discharge end of the platform. A conveyor is provided at the discharge end of the platform for collecting the sliced onion rings.

3,682,215

METHOD AND APPARATUS FOR EFFECTING THE ACTUATING AND NON-ACTUATION OF A RESPONSIVE INSTRUMENTALITY

Frank S. Kasper, Flossmoor, Ill., assignor to Amtron, Inc., Midlothian, Ill.

Division of Ser. No. 856,005, Sept. 8, 1969, Pat. No. 3,634,741. This application May 6, 1971, Ser. No. 140,822
Int. Cl. B26d
U.S. Cl. 146—222 4 Claims



There is disclosed a method and an apparatus for alternately effecting the actuation and non-actuation of a responsive instrumentality in a manner such that during actuation of the instrumentality, cooperation can be effected for a variable system condition. The apparatus comprises a first timer having a timing period and a non-timing period, a second timer connected to the first timer also having a timing period and a non-timing period wherein the first timer is adapted to switch to the non-timing period after the timing period is completed and upon switching to the non-timing period actuates the second timer into its timing period. The second timer is connected to the instrumentality to be actuated and the instrumentality is actuated whenever the second timer is in its timing period and is not actuated when the second timer is in its non-timing period. Sensing means are connected to the second timer for continuously sensing a predetermined system condition and wherein the duration of the timing period of the second timer is responsive to the sensing means. Control means are connected in circuit with the instrumentality to be actuated as well as to the first and second timer wherein the control means is adapted to initially place the first timer to its timing period and the second timer into its non-timing period wherein after the timing period of the first timer is completed, the first timer switches to its non-timing period thereby placing the second timer into its timing period and thereby causing the instrumentality to be actuated, this actuation continuing until the second timer switches into its non-timing period whereby the first timer again switches to its timing period thereby effecting the alternate actuation and non-actuation of the instrumentality.

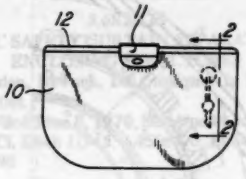
3,682,216

KEY HOLDER FOR INSIDE A PURSE

Leone M. Nelson, 3514 Poe Avenue, Racine, Wis.

Filed July 27, 1970, Ser. No. 58,559
Int. Cl. A45c *11/32*
U.S. Cl. 150—40 3 Claims

A purse with a magnetically attractive piece affixed to the inside wall of the purse adjacent the opening of the purse. A second magnetically attractive piece is in a cup shape and encircles a magnet affixed therein so that the second piece and the magnet can be magnetically held to the first piece and removed therefrom, as desired. The second piece contains a key retainer, so that keys can be removably held in the purse in the position determined by the location of the first piece inside the purse. The second magnetically attractive piece has an edge which extends beyond the magnet and thereby provides complete and flat contact with the first piece for maximum magnetic attraction between the two pieces.

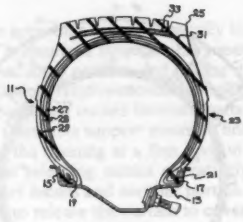


3,682,217

TIRE CONSTRUCTION FEATURING GLASS AND ORGANIC CORD CARCASS PLIES

Alfred Marzocchi, 35 Thomas Leighton Blvd., R.F.D. #3, Cumberland, R.I.

Filed June 9, 1970, Ser. No. 44,823
Int. Cl. B60c *9/02*
U.S. Cl. 152—356 28 Claims



Tire constructions are disclosed which feature both organic cord carcass plies and/or belt plies and glass cord carcass plies and/or glass cord belt plies; the plies being so arranged and disposed that certain of the cord plies do not extend to the bead region, particularly into the bead turnup region, whereas other of the cord plies do extend into the bead and are turned up thereabout.

3,682,218

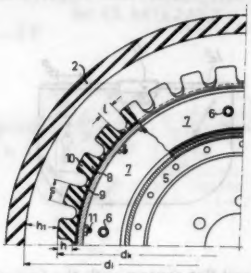
EMERGENCY SUPPORTING RING FOR VEHICLE WHEELS WITH PNEUMATIC TIRES

Peter Johannsen; Robert Kohler, and Gerhard Wedekind, all of Hannover, Germany, assignors to Continential Gummi-Werke Aktiengesellschaft, Hannover, Germany

Filed March 26, 1970, Ser. No. 22,914
Claims priority, application Germany, Feb. 3, 1970, P 20 04 740.9; Feb. 11, 1970, P 16 05 629.4
Int. Cl. B60c *17/04*
U.S. Cl. 152—158 3 Claims

An emergency supporting ring for vehicle wheels with pneumatic tires, which is arranged within the hollow chamber of the tire and is equipped with blocks of rubber material which blocks are uniformly distributed over the circumference of said emergency supporting ring, the total of the distance between each two adjacent blocks measured along the outer circumferential circle of the ring being greater than the difference between the circumferential circle of said ring and the inner tire circumference while the difference in the circumferential speed of said outer circumferential surface of said

ring and the outer circumferential surface of the tire is compensated for by a shear deformation of the blocks, the spacing between two adjacent blocks being such that at the ground



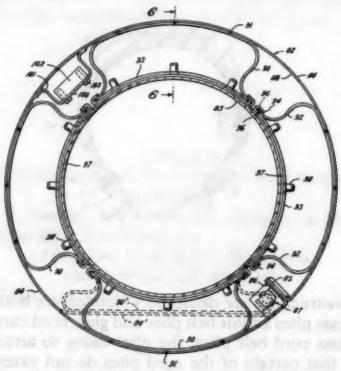
contacting area of the tire when the wheel is under the rated load of the tire is greater than the deformation stroke of the blocks during their shear deformation.

3,682,219

SUPPORT BELT FOR DEFLATED TUBELESS TIRE

William L. Lindley, P.O. Box 58584, Houston, Tex.

Continuation-in-part of Ser. No. 821,901, May 5, 1969, abandoned. This application April 10, 1970, Ser. No. 27,379
Int. Cl. B60c *17/04*
U.S. Cl. 152—158 13 Claims



A support belt comprising a support member positioned inside a tubeless tire and extending circumferentially about the rim on which the tire is mounted for engaging the tire when it is deflated to prevent the rim from damaging the sidewalls and tread portion of the tire wherein the support member comprises a continuous band encircling the rim and releasably secured or positioned relative thereto by means which are adapted to release when the weight of the vehicle is imposed on the support member upon deflation of the tire to enable the support member to thereafter freely move radially and circumferentially relative to the rotating rim to inhibit damage to the deflated tire.

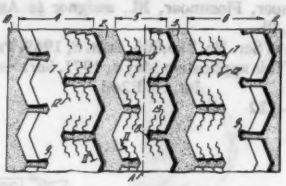
3,682,220

TREAD FOR WIDE TIRE

Henri Verdier, Beauregard-L'Eveque, France, assignor to Compagnie Generale Des Etablissements Michelin raison sociale Michelin & Cie, Clermont-Ferrand, Puy-de-Dome, France

Filed June 10, 1970, Ser. No. 45,106
Int. Cl. B60c *11/06, 11/08*
U.S. Cl. 152—209 D 7 Claims

A wide tire tread is divided by two continuous longitudinal grooves into three circumferential zones of substantially equal width. Each of the longitudinal grooves has a width at least equal to its depth, and each of the circumferential zones comprises grooves extending in a non-longitudinal direction. This



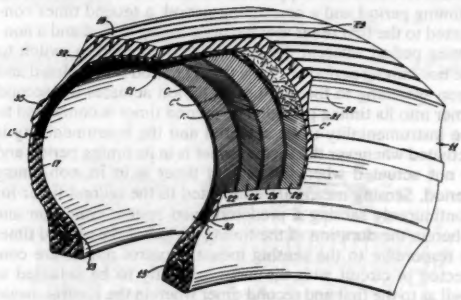
renders the circumferential zones flexible for intimate contact with the ground, yet does not unduly carve up and weaken the tread.

3,682,221

TIRE CONSTRUCTION WITH IMPROVED REINFORCEMENT

Alfred Marzocchi, 35 Thomas Leighton Blvd., R.F.D. #3, Cumberland, R.I., and Alfred Winsor Brown, 324 Harris Ave., Woonsocket, R.I.

Continuation-in-part of Ser. No. 699,193, Jan. 19, 1968, abandoned, and a continuation-in-part of Ser. No. 622,588, March 13, 1967, Pat. No. 3,433,689, which is a division of Ser. No. 450,790, April 26, 1965, Pat. No. 3,315,722. This application March 14, 1969, Ser. No. 807,318
Int. Cl. B60c *9/12*
U.S. Cl. 152—357 11 Claims



Tire construction featuring as the principal reinforcement a combination of chopped bundles or cords, each composed of an assembled plurality of glass filaments held together, and chopped discrete glass filaments distributed throughout the rubbery matrix generally uniformly, preferably at a level of about two to about thirty-five parts of glass per one hundred parts of rubber and preferably with the bundles exceeding the discrete filaments in amount on a weight basis.

3,682,222

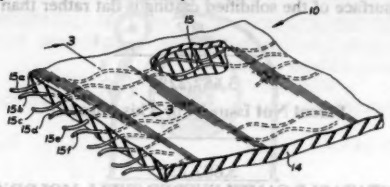
PNEUMATIC TIRE HAVING HELICAL REINFORCING FILAMENTS

Sterling W. Alderfer, Akron, Ohio, assignor to Industrial Heights, Inc., Akron, Ohio

Filed Jan. 6, 1970, Ser. No. 858
Int. Cl. B60c *9/18*
U.S. Cl. 152—361 5 Claims

A reinforced tire fabric comprising an elastomeric body portion in which a plurality of helically formed, single filament wires constitute the reinforcing. The helix delineated by each reinforcing wire has a relatively long lay and the diameter

thereof is preferably no greater than three times the diameter of the wire itself. The wire filaments may be cold formed into their respective helices by being drawn through relatively rotatable orifice means—adjacent filaments preferably being of opposite hand—and encapsulated into a continuously extruded ribbon that is manipulated and appropriately severed to form the fabric. The ribbon may be wound into an annulus that is subsequently slit into a ply strip, or successive lengths of the ribbon may be joined into a ply strip. By either approach the bias of the reinforcing filaments in the finished tire may be preselected.

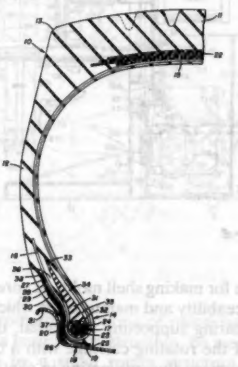


3,682,223

TIRE BEAD CONSTRUCTION

Robert O. Simpson, 2371 Wyandotte Ave., Cuyahoga Falls, Ohio

Filed May 20, 1970, Ser. No. 39,814
Int. Cl. B60c *15/06*
U.S. Cl. 152—362 R 10 Claims



A radial wire pneumatic tire having a hard wedge shaped apex strip extending radially of and from each bead and a soft cushion strip disposed between the apex strip and the radial wire carcass.

The foregoing abstract is not to be taken as limiting the invention of this application, and in order to understand the full nature and extent of the technical disclosure of this application, reference must be made to the accompanying drawing and the following detailed description.

3,682,224

SCALE PREVENTION AGENTS OF METHACRYLIC ACID-VINYL SULFONATE COPOLYMERS FOR SALINE WATER EVAPORATION

Merrill Bleyle, 113 Temple Road, Waltham, Mass.

Filed Dec. 17, 1970, Ser. No. 99,306
Int. Cl. B01d *3/34*
U.S. Cl. 159—47 R 9 Claims

The temperature at which saline and sea-water evaporators can be operated is raised materially by adding from 1 – 10 parts of the copolymer of methacrylic acid and vinyl sulfonate, preferably in the form of a basic salt, to the saline water in the evaporator. At 10 PPM addition, the evaporators can be run at 280° F., and the water be allowed to concentrate ten-fold without the precipitation of calcium sulfate occuring on the evaporator surface. Monomer ratios of methacrylic acid to vinyl sulfonate may be varied from 50–50 to 25–75.

3,682,225

AUTOMATIC SAFETY CURTAIN APPARATUS FOR AIR ENCLOSING STRUCTURES

Robert J. Redden, Newark, Del., assignor to ILC Industries, Inc., Dover, Del.

Filed June 8, 1970, Ser. No. 44,451
Int. Cl. E04b *1/345*; A45f *1/00*; E06b *5/00*
U.S. Cl. 160—98 12 Claims

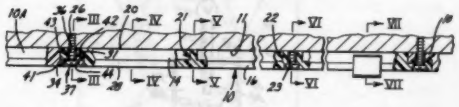
A safety curtain apparatus for automatically blocking an air opening in an air pressurized structure has means to retain a safety curtain in retracted position and release it to block the opening when undesired relative movement sufficient to cause unblocking of the opening occurs between parts of the structure by utilizing a releasable support means to hold the curtain retracted adjacent the opening at a first portion of the structure and a curtain releasing means operatively connecting between the support means and another portion of the structure and operative to release the curtain to cover the opening whenever significant undesired relative movement occurs.

3,682,226

UNITARY TRAVERSE ROD

James A. Ford, Sturgis, Mich., assignor to Kirsch Company, Sturgis, Mich.

Filed March 22, 1971, Ser. No. 126,487
Int. Cl. A47h *1/02*
U.S. Cl. 160—330 8 Claims



A traverse rod and drapery system for movably supporting a pleated drapery and wherein at least the leading end of the drapery is movable longitudinally of the traverse rod between open and closed positions. An elongated, unitary, moldable plastics, T-shaped traverse rod is provided having a stem section and a cross bar section integrally connected. The stem section has an elongated slot therein in the end remote from the cross bar section extending lengthwise of the traverse rod. A plurality of openings are molded through the cross bar section and the stem section of the traverse rod to permit the reception of fastening elements therethrough for the purpose of securing the traverse rod to a supporting surface. A plurality of drapery carriers are provided and have means thereon adapted to engage the traverse rod and permit movement therealong.

3,682,227

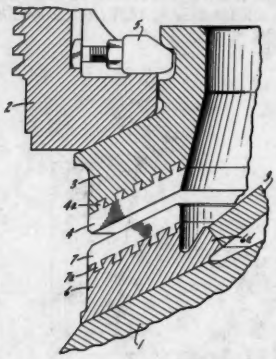
METHOD OF MAKING BI-METAL CRUSHER LINER

Jerome C. Motz, and Francis Scaffidi, both of Box 383, Milwaukee, Wis.

Division of Ser. No. 842,818, July 8, 1969, Pat. No. 3,582,008, which is a continuation-in-part of Ser. No. 617,284, Feb. 20, 1967, abandoned. This application July 24, 1970, Ser. No. 64,864

Int. Cl. B22d *23/00*

U.S. Cl. 164—94 2 Claims



This is a method of forming a wearing assembly for use in gyratory crushers whereby either the mantle or bowl liner of a crusher is made of a composition in which a backing member with a high tensile strength supports a crushing or working surface having high wear resistance. The working surface is in the form of discontinuous surface members permanently mounted on or cast integrally with the backing body and structurally connected only by the backing body.

3,682,228

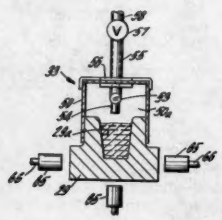
METHOD OF CONTINUOUS CASTING WITH CIRCULAR TROUGH MOLD

Douglas C. Yearley, Westfield, N.J., assignor to Phelps Dodge Copper Products Corporation, New York, N.Y.

Division of Ser. No. 647,680, June 21, 1967, Pat. No. 3,603,378. This application March 11, 1971, Ser. No. 123,236

Int. Cl. B22d *11/00*

U.S. Cl. 164—124 3 Claims



A generally horizontal annular trough forming a circular mold cavity is rotated about a generally vertical axis to transfer molten metal from a feeding station through a solidifying zone and thence through a discharge station where the solidified metal is continuously removed from the mold. The solidifying zone is formed by a cooling station including means for continuously cooling the trough to solidify molten metal in the mold, and a hood overlying at least part of the cooling station forms a substantially enclosed space above the open top of the mold. This space contains nozzle means for concentrating on the upper surface of the metal a stream of non-oxidizing gas which, prior to complete solidification of the metal, forms a solidified skin across its upper surface to prevent escape of gas from within the metal. Thus, when the metal is of the type that evolves gas to offset shrinkage during solidification, the upper surface of the solidified casting is flat rather than concave.

3,682,229

Patent Not Issued For This Number

3,682,230

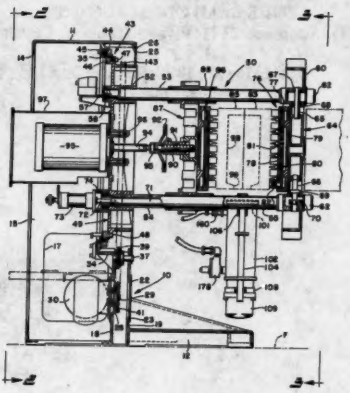
ROTATABLE CANTILEVERED SHELL MOLDING MACHINE

Warren A. Blower, Bercksville; Gilbert J. Janke, Parma, and Edward D. Abraham, Cleveland, all of Ohio, assignors to The Sherwin-Williams Company, Cleveland, Ohio

Filed Sept. 22, 1970, Ser. No. 74,424

Int. Cl. B22c *13/08*

U.S. Cl. 164—165 18 Claims



A machine for making shell molds or cores having improved safety, serviceability and maintenance which includes a single large ball bearing supporting the radial, thrust and the moment load of the rotating carriage with a considerable safety factor, the carriage thus projecting in cantilever fashion from the base, the distal end of the carriage being provided with a door, the actuating mechanism being an enclosed rack and gear providing constant torque, the operation of the door and the locking of the door being accomplished by piston-cylinder assemblies at the proximal end of the carriage out of the high temperature zone adjacent the tooling,and a simplified automatic sand feed system utilizing a large rubber ball check valve.

3,682,231

SANDSLINGER HEAD

Grigory Semenovich Taburinsky, 4 Grazhdanskaya ulitsa, 34, korpus 3, kv. 3; Eduard Mikhailovich Gutterman, 2 Volkovsky pereulok, 5, kv. 34, and Arnold Izrailevich Fain, B. Cherkizovskaya ulitsa, 6, korpus 7, kv. 70, all of Moscow, U.S.S.R.

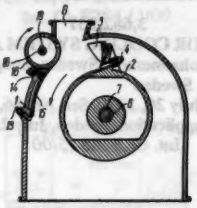
Filed Jan. 27, 1971, Ser. No. 110,000

Int. Cl. B22c *15/20*

U.S. Cl. 164—198 2 Claims

A sandslinger head for ramming a molding mixture in which a rotor provided with a bucket is located in a housing, and a curved guide is disposed between a hole in the housing for charging the mixture, and a hole for its ejection or discharge.

The characteristic feature of the sandslinger head is a driven roller mounted between the charging hole and the curved



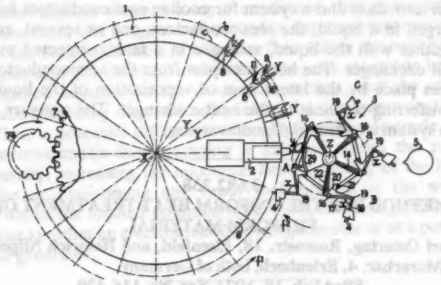
guide serving to prevent the adhesion of the mixture within the slinger head.

3,682,232

SYSTEM FOR POURING INTO FOUNDRY MOULDS

Roger Jean Bouyt, Fumel, France, assignor to Centre De Recherches De Pont-A-Mousson Maidieres, Pont-A-Mousson, France

Filed Dec. 15, 1970, Ser. No. 98,398
Claims priority, application France, Dec. 6, 1969, 6943516
Int. Cl. B22d *5/02*
U.S. Cl. 164—326 **6 Claims**



System for mass-production pouring of metal into foundry moulds, disposed on a large rotary structure, by means of metering ladles carried by a small rotary structure. A metal supply ladle pours metal into the metering ladles one-by-one in the known manner. The number of metering ladles is smaller than the number of moulds but their circumferential spacing is the same. The small rotary structure is rotated in synchronism with the large rotary structure by a tooth and roller drive. Means are provided for correctly presenting the spouts of the metering ladles in front of the moulds and for pouring the metal.

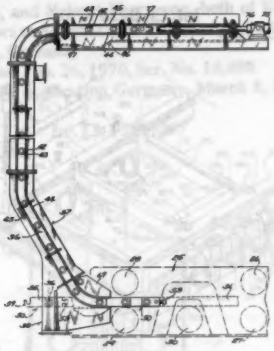
3,682,233

CONTINUOUS CASTING MACHINE STARTING SYSTEM

Joseph Rokop, and Geoffrey W. Hughes, both of Bethel Park, Pa., assignors to Pennsylvania Engineering Corporation

Filed Sept. 2, 1970, Ser. No. 69,045
Int. Cl. B22d *11/08*
U.S. Cl. 164—274 **4 Claims**

An articulated starting bar is adapted for being driven from a high elevation storage position to a position where its head end closes the bottom of an elevated mold. A solidifying billet or strand is attached to and is withdrawn with the head end as the starting bar is withdrawn. After passing through a straightener roller mechanism, the head is detached and follows a horizontal path with the strand, but the starting bar is diverted in a vertically upward path for storage clear of the adverse conditions which prevail at the lower level. Power actuated means are provided for initiating advancing and retracting the starting bar to and from the straightener mechanism. Means are provided for positively latching the bar in its home position of storage.

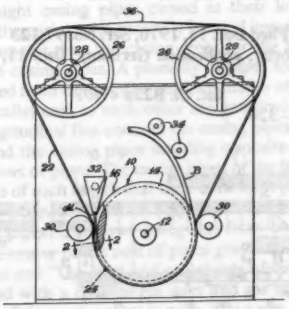


3,682,234

STRUCTURE FOR THE CONTINUOUS CASTING OF METAL BARS

Ralph A. Vogel, Three Rivers, Mich., assignor to Essex International, Inc.

Filed Sept. 17, 1970, Ser. No. 73,376
Int. Cl. B22d *11/06*
U.S. Cl. 164—278 **8 Claims**



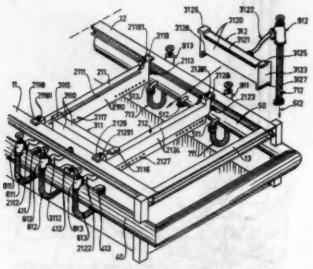
A structure for the continuous casting of metal bars, such as copper and aluminum, from hot molten metal. The structure includes a casting wheel which has a peripheral groove with a circumferential opening therein. A continuous-one-sided planar belt is provided for closing at least a portion of the circumferential opening so as to define a chamber for receiving the molten metal and for forming the continuous metal bar as the molten metal drops below its melting point. It is important that substantially the entire casting belt is in contact with the molten metal and the metal bar during the portion of the time that the belt is in contact with the casting wheel.

3,682,235

COOLING WATER CHAMBER FOR VERTICAL CASTING FRAME

Michel G. Kazeef, 33 rue Jean-Jacques Rousseau, 92-Colombes, France

Filed Sept. 23, 1970, Ser. No. 74,675
Claims priority, application France, Sept. 26, 1969, 6932885
Int. Cl. B22d *11/02*
U.S. Cl. 164—283 8 Claims



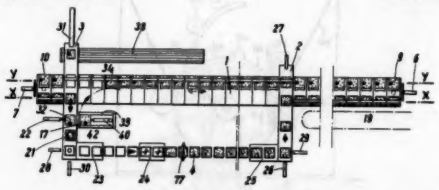
A universal water chamber for a vertical casting frame which can be adapted to a wide range of formats and which provides for easy regulation and distribution of water, including a supporting frame, crossmembers adjustably supported on said frame, and spray heads variably fixed to said crossmembers, a source for cooling water, and ramps connected by an independent variable-flow flexible coupling to each of the crossmembers and heads, whereby the number of crossmembers and heads and the positions thereof relative to each other and the frame can be varied to accommodate castings of different formats.

3,682,236

AUTOMATIC MOLDING PLANT WITH VERTICALLY SPACED CONVEYING PATHS

Friedrich B. Becke, Wolfartsweier, Germany, assignor to Badische Maschinenfabrik GmbH, Postfack, Karlsruhe, Germany

Filed Dec. 11, 1970, Ser. No. 97,123
Claims priority, application Germany, Dec. 11, 1969, P 19 62 131.9
Int. Cl. B22d *47/02*
U.S. Cl. 164—324 24 Claims



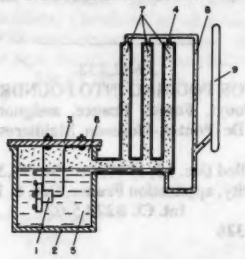
An automatic molding plant and operational method having a plurality of traverse carts or bogies to convey box molds. The molds are transferred from a sidetrack at a loading station and are ready for casting, then to a casting station or train and from there to an unloading station by way of a cooling track comprising at least two conveying paths positioned in different horizontal planes. Liftable and/or lowerable end sections are provided at the ends of the conveying paths, and the sidetrack is connected with one conveying path through the loading and unloading stations. Transferable weighting members are placed in the box molds in front of the casting station and are conveyed from the unloading station to the loading station on the traverse carts. After part of the cooling track has been traversed, the mold packs are separated from the box molds, and the box molds are returned to the molding machine while the mold pack traverses the remainder of the cooling track in an undamaged manner.

3,682,237

SEMICONDUCTOR COOLING SYSTEM AND METHOD

Henry Ervin Islo, Johanneshov, Sweden, assignor to AGA Aktiebolag, Lidingo, Sweden

Filed July 20, 1970, Ser. No. 56,408
Claims priority, application Sweden, July 25, 1969, 10498
Int. Cl. F28d *15/00*
U.S. Cl. 165—1 2 Claims



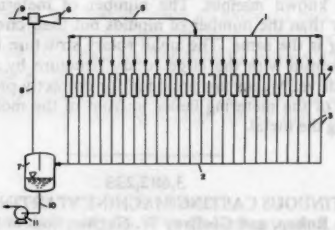
In a method and a system for cooling semiconductors submerged in a liquid, the semiconductors, one or several, are, together with the liquid, arranged in a tank connected to a heat exchanger. The heat transport from the semiconductors takes place by the latent heat of vaporization of the liquid, transferring the heat to the heat exchanger. The pressure in the system is substantially non-varying.

3,682,238

METHOD FOR THE UNIFORM HEAT TREATMENT OF FILIFORM MATERIAL

Karl Ostertag, Rosenstr. 18, Elsenfeld, and Heinrich Nilgens, Mozartstr. 4, Erlenbach, both of Germany

Filed Feb. 18, 1971, Ser. No. 116,420
Int. Cl. F26b *3/32*
U.S. Cl. 165—1 7 Claims



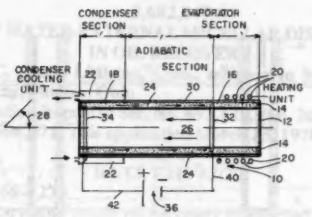
A method of uniformly heating a filiform material such as filaments, threads, yarn, ribbons or the like which are separately transported through individual heating zones, the filiform material being indirectly heated by means of a recirculated vapor such as saturated steam, the condensate collecting in each of the heating zones being entrained and carried off therefrom by supplying excess vapor to each zone at high vapor velocities and high gas concentrations.

3,682,239

ELECTROKINETIC HEAT PIPE

Momtaz M. Abu-Romia, 124 Amity St., Brooklyn, N.Y.

Filed Feb. 25, 1971, Ser. No. 118,756
Int. Cl. F28d 15/00
U.S. Cl. 165—1 23 Claims



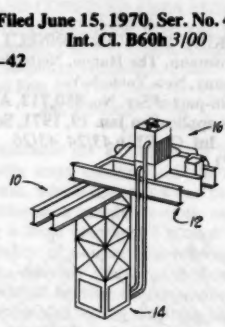
A heat pipe for transporting a large quantity of heat within a small temperature difference provided with a tube, a wick, and a fluid that can transfer heat. The tube includes an evaporator section at one end and a condenser section at the opposite end thereof. The wick is disposed uniformly against the side walls of the tube and provides a capillary action to transfer the fluid from the condenser section to the evaporator section. Heat at the evaporator section causes the fluid to evaporate, wherein the vapor is then transmitted to the condenser section where the vapor condenses, thus giving up its latent heat, and is again transmitted to the evaporator section by the wick to define a continuous flow within the heat pipe. Electrodes are disposed within the tube, one electrode being disposed adjacent to the evaporator section, and the other electrode being disposed adjacent to the condenser section. When a potential difference is applied to the electrode, an electro-osmotic flow pumping is effected within the pipe, thereby, increasing the maximum heat capability of the heat pipe or overcoming any vapor lock present in the wick. Without the applied potential difference, the heat pipe functions as either an electrokinetic power generator or as a potential generator.

3,682,240

AIR CONDITIONING SYSTEM FOR A CRANE CAB

James W. Cira, 3047 East Derbyshire, Cleveland Heights, Ohio

Filed June 15, 1970, Ser. No. 46,214
Int. Cl. B60h 3/00
U.S. Cl. 165—42 4 Claims



A crane having an overhead operator's cab and an air conditioning system for the cab. The air conditioning system includes a heat exchanger unit in the cab, a heat transfer system supplying heat transfer fluid to the heat exchanger unit for heating or cooling the cab air and apparatus for heating or cooling the heat transfer fluid.

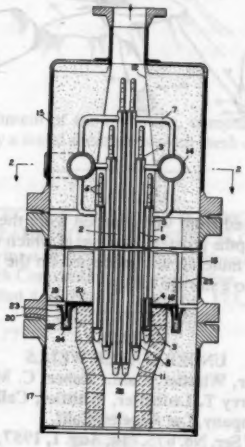
The cooling apparatus comprises a refrigeration unit having a heat rejecting heat exchanger supported remote from the cab, and a heat absorbing heat exchanger for cooling the fluid. A heating unit heats the fluid so that the cab air can be heated or cooled.

3,682,241

HEAT EXCHANGER, PARTICULARLY FOR COOLING FRESH CRACKED AND/OR SYNTHESIS GASES

Gerhard Clauss, and Helmut Herrmann, both of Kassel, Germany, assignors to Schmidt'sche Heissdampf-GmbH, Kassel-Bettenhausen, Germany

Filed Feb. 26, 1970, Ser. No. 14,498
Claims priority, application Germany, March 5, 1969, P 19 11 195.6
Int. Cl. F28f 9/00
U.S. Cl. 165—136 7 Claims



A heat exchanger particularly for cooling fresh cracked and/or synthesis gases produced through high pressure and high temperature having a casing with an inlet and outlet for gases. Straight casing pipes closed at their lower ends are located in the casing with centrally located immersion tubes of smaller diameter than the casing pipes for the supply of coolants in the casing pipes. A plurality of pipes forming rows of pipes spaced from one another and a plurality of rows of pipes spaced parallel next to each other are gathered into a nest of pipes. Longitudinal fins connect the casing pipes forming rows of pipes and the casing pipes standing opposite each other of adjacent rows of pipes. The casing pipes of the individual rows of pipes are of such length that their ends form parallel rows to each other aligned perpendicular to the longitudinal axis of the casing pipes. The rows going out from both outer rows toward the center of the nest of pipes gradually rise from pipe row to pipe row. The inlet and outlet side of the nest of pipes are covered with a conical gas inlet and gas outlet head and the length of the casing pipes is such, that a row of pipes in the area of said inlet and outlet heads increase gradually according to the conicity of the heads.

3,682,242

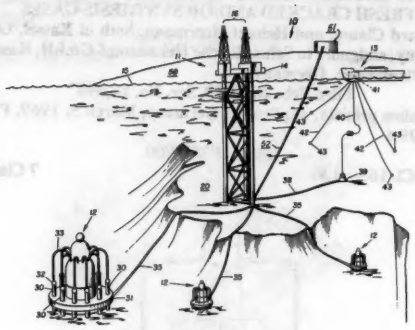
UNDERWATER PRODUCTION AND STORAGE SYSTEM

Warren B. Brooks, Darien, Conn.; James T. Dean, Dallas, Tex.; William F. Manning, Dallas, Tex.; Lewis A. Rupp, Dallas, Tex., and William A. Talley, Jr., Dallas, Tex., assignors to Mobil Oil Corporation

Filed May 22, 1969, Ser. No. 826,842
Int. Cl. E21b 43/01
U.S. Cl. 166—.5 15 Claims

The specification discloses a method and system for producing minerals from an underwater production area where the

marine bottom slopes from relatively shallow depths to greater depths. A bottom-supported platform is fixed in the relatively shallow depths of the production area and is used to process



minerals produced from wells spaced from the platform and completed in depths greater than that at which the platform is fixed. After the minerals are processed on the platform, they are transferred to a storage means.

3,682,243

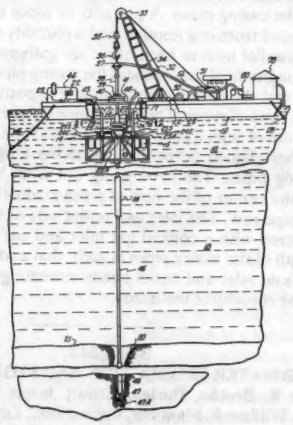
UNDER WATER WELLS

Robert F. Bauer, Whittier, Calif.; Robert C. McNeill, Sunset, Utah, and Jerry T. Ledbetter, Whittier, Calif., assignors to Shell Oil Company, Los Angeles, Calif.

Division of Ser. No. 675,714, Aug. 1, 1957, which is a continuation-in-part of Ser. No. 468,214, Nov. 12, 1954, Pat. No. 2,808,229. This application Oct. 7, 1968, Ser. No. 765,565

Int. Cl. E21b *7/12*

U.S. Cl. 166—0.6 **7 Claims**



Underwater wells are drilled with equipment which can be guided from a floating vessel to an underwater well and locked in place to facilitate moving equipment to and from the well during drilling and completion operations.

3,682,244

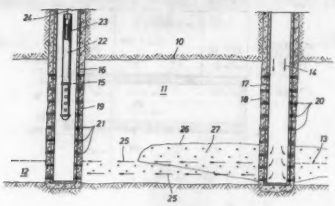
CONTROL OF A STEAM ZONE

Ronald W. Bowman, Houston, Tex., and Alvin Lee Hall, Boston, Mass., assignors to Shell Oil Company, New York, N.Y.

Filed March 5, 1971, Ser. No. 121,384

Int. Cl. E21b *43/20, 43/24*

U.S. Cl. 166—252 **6 Claims**



In a rising steam flood thermal recovery process wherein viscous crude oil is recovered from a subsurface earth formation which comprises an upper predominately oil saturated zone and a lower predominately water saturated zone by injecting hot water and/or steam into the lower predominately water saturated zone through an injection well and producing fluids from the formation through a production well, a method for controlling the movement of steam within the formation by selectively plugging back the injection and producing wells.

3,682,245

SELECTIVE PLUGGING OF MORE PERMEABLE ZONES

Perry A. Argabright, Sedalia, Colo., and C. Travis Presley, Littleton, Colo., assignors to Marathon Oil Company, Findlay, Ohio

Filed Sept. 15, 1970, Ser. No. 72,388

Int. Cl. C07d *55/38;* **E21b** *33/138, 43/22*

U.S. Cl. 166—270 **9 Claims**

More permeable zones in subterranean formations in fluid communication with a well can be partially or completely plugged by injecting solutions of compounds which precipitate over a period of time, e.g., aqueous solutions of isocyanuric acid and its substituted derivatives, so as to decrease the permeability to a controlled extent. This permits secondary recovery of oil-in-place without excessive flow of displacing fluids through the originally more permeable zone.

3,682,246

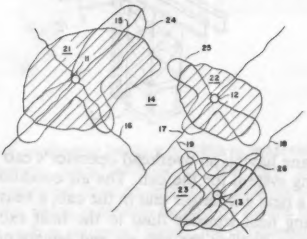
FRACTURING TO INTERCONNECT WELLS

Philip Joseph Closmann, The Hague, Netherlands, assignor to Shell Oil Company, New York, N.Y.

Continuation-in-part of Ser. No. 850,712, Aug. 18, 1969, abandoned. This application Jan. 19, 1971, Ser. No. 107,833

Int. Cl. E21b *43/24, 43/26*

U.S. Cl. 166—271 **12 Claims**



Wells in a substantially impermeable subterranean earth formation that tends to fracture along non-intersecting verti-

cal planes of natural weakness are interconnected by initially fracturing at least one of the well boreholes along its vertical plane of natural weakness, filling the fracture with a granular material, and refracturing the well borehole by pumping in a viscous fluid at a rate causing the pressure to rise above the pressure at which the first fracture was formed. The last-mentioned fracture is extended into communication with an adjacent well or a fracture extending from the adjacent well.

3,682,247

USE OF WATER-EXTERNAL MICELLAR DISPERSIONS IN OIL RECOVERY

Stanley C. Jones, Littleton, Colo., assignor to Marathon Oil Company, Findlay, Ohio

Continuation-in-part of Ser. No. 693,125, Dec. 26, 1967, Pat. No. 3,506,071. This application March 23, 1970, Ser. No. 22,080

Int. Cl. E21b *43/22*

U.S. Cl. 166—273 **10 Claims**

Secondary-type crude oil recovery is effected by injecting into a subterranean formation 1–20 percent formation pore volume of a water-external micellar dispersion of hydrocarbon and petroleum sulfonate dispersed in water and displacing it through the formation to recover crude oil therefrom.

3,682,248

Patent Not Issued For This Number

3,682,249

METHOD FOR INHIBITING THE DEPOSITION OF WAX FROM WAX-CONTAINING SOLUBLE OILS AND MICELLAR DISPERSIONS AND SOLUBLE OIL AND MICELLAR COMPOSITIONS INHIBITED THEREBY

Paul W. Fischer, 11751 E. Beverly Blvd., Whittier, Calif., and LeRoy W. Holm, 601 Elinor Drive, Fullerton, Calif.

Filed Jan. 8, 1971, Ser. No. 105,089

Int. Cl. C23f *11/12, 15/00*; E21b *43/25*

U.S. Cl. 166—305 R **35 Claims**

A method for inhibiting the deposition of wax from wax-containing soluble oils and micellar dispersions in which a small amount of a was deposition inhibitor comprised of a copolymer of ethylene and a monoethylenically unsaturated ester is added to the soluble oil or micellar dispersion. Also disclosed are soluble oil and micellar compositions containing small amounts of the ethylene-ester copolymer.

3,682,250

ENCLOSED AND CONFINED AREA AUTOMATIC FIRE EXTINGUISHER HOSE AND APPARATUS

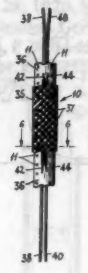
Elwood R. Horwinski, Chesire, Conn., assignor to The Lewis Engineering Company, Naugatuck, Conn.

Filed Feb. 11, 1971, Ser. No. 114,603

Int. Cl. A62c *35/00*

U.S. Cl. 169—5 **21 Claims**

Automatic apparatus for extinguishing fires in enclosed areas such as cable trays, conduits and the like as well as in non-enclosed areas, which apparatus can be independent of commercial utilities such as water supply, electrical services, etc., comprising a local pressurized source of extinguishing fluid and a plurality of unique heat-responsive distribution hoses adapted to develop discharge orifices or nozzles in response to localized heating in conjunction with internal pressures, said hoses also having detecting electrical conductors which respond to heat and which are connected to electro-responsive power equipment controlling valves for releasing the extinguishing fluid to the hoses under conditions of fire. The hoses may be, for example, strung in cable trays and other inaccessible locations. The conductors for connection to the responsive power equipment can be eutectic and sparsely heat-insulated to provide a desirable action by which normal changes in ambient temperature causes quick response of the extinguisher system, or else response when a predetermined temperature is reached. The nozzle-forming hoses, in the illustrated embodiment of the invention, comprise plastic tubing surrounded by a metal sheath or woven mesh or braid.



3,682,251

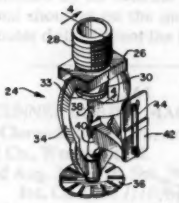
FIRE PROTECTION SYSTEM UTILIZING SPRINKLER HEADS WITH A PRESSURE FLOOR

William L. Livingston, Sharon, Mass., assignor to Factory Mutual Research Corporation, Norwood, Mass.

Filed Aug. 20, 1971, Ser. No. 173,388

Int. Cl. A62c *37/08*

U.S. Cl. 169—37 **11 Claims**



A fire protection system and a sprinkler head utilized in the system, wherein extinguishant is supplied to the sprinkler head which is actuated by a release of a thermal fuse to discharge the extinguishant against a deflector disc and form a hemispherical pattern of droplets. If the fluid pressure in each head does not attain a predetermined value, the head will not be actuated despite release of the thermal fuse.

3,682,252

HARROW ATTACHMENT AND MUD CLEANER FOR GRAIN DRILLS

Robert B. Gates, Loraine, N. Dak.

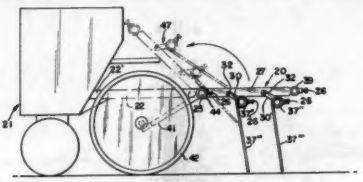
Filed June 1, 1970, Ser. No. 41,804

Int. Cl. A01b *49/04*

U.S. Cl. 172—198 **1 Claim**

The invention comprises a harrow attachment for grain drills, having a pole extending horizontally across the rearward end of the grain drill and attached thereto. A pair of arm are pivotally mounted to the pole and a dual pair of levers are pivotally mounted to the arms with harrow teeth mounted to the lower end of the lever arms. The arms may be pivoted up-

wardly about the axis of the pole against the back of the grain drill with gravity causing the levers to pivot downward with



the harrow teeth attached thereto to pivot the harrow teeth compactly against the grain drill.

3,682,253

MOUNTING FRAME FOR ROCK BREAKERS AND ROCK IMPLEMENTS

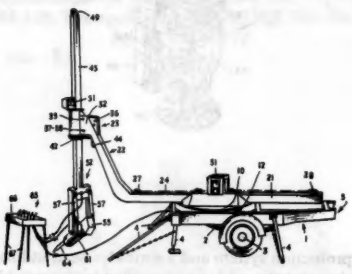
Ian Arthur McIntosh; Norman John Bowers; Brian Alfred Bowers, and Bruce Robert Miles, all of Sydney, New South Wales, Australia, assignors to Air Advantage (Australia) Pty. Limited, Sydney, Australia

Filed Sept. 22, 1970, Ser. No. 74,318

Claims priority, application Australia, Oct. 2, 1969, 61773/69

Int. Cl. E21c *11/02*

U.S. Cl. 173—23 **9 Claims**



A mobile mounting frame for rock working tools having universally movable tool positioning and operatively supporting means.

3,682,254

SPRING-LOADED HAMMER

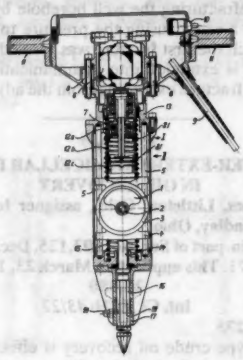
Albert Hoeffleur, Kusnacht, Zurich, Switzerland, assignor to Regus A.G., Zurich, Switzerland

Filed July 6, 1970, Ser. No. 52,202

Int. Cl. B25d *11/06*; F16h *33/18*

U.S. Cl. 173—49 **5 Claims**

A spring-loaded hammer or percussion drill with a mechanical vibratory system having vibratory masses and springs for cushioning the masses and transmission means so that part of



the energy of vibration is transferred in impact form to a percussive tool.

3,682,255

Patent Not Issued For This Number

3,682,256

METHOD FOR ELIMINATING WEAR FAILURES OF WELL CASING

Charles A. Stuart, 19 Tokalon Place, Metairie, La.

Filed May 15, 1970, Ser. No. 37,901

Int. Cl. E21b *47/10*

U.S. Cl. 175—40 **28 Claims**

A method for eliminating wear failures of the casing of a well borehole adapted to be extended into a subterranean earth formation by determining where casing wear takes place, quantifying casing wear continuously, designing the casing for wear, reducing the amount of wear, and replacing casing worn to the tolerable limit.

3,682,257

Patent Not Issued For This Number

3,682,258

ROTARY-PERCUSSION GANG DRILL WITH CIRCUMFERENTIALLY FLOATING OFFSET BITS

Joseph L. Kelly, Jr., and Henry B. Woods, both of Houston, Tex., assignors to Hughes Tool Company, Houston, Tex.

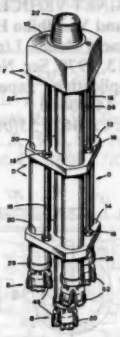
Filed June 22, 1970, Ser. No. 48,222

Int. Cl. E21b *1/06, 3/12, 5/00*

U.S. Cl. 175—96 **5 Claims**

A big hole drill in which a multiplicity of parallel downhole percussion drills are secured to a common framework for joint rotation therewith. The drills may be supplied with operating fluid from a common manifold, but each drill hammers independently of the others. The individual drill has a percussion bit secured to and depending from its forward end, the bit being mounted for limited axial movement relative to the drill so that the hammering action of the drill on the bit drives it forward into a rock formation. The improvement lies in mounting those bits which are offset from the axis of rotation of the assembly so that each bit is circumferentially floating with respect to its associated drill. In operation each such offset bit is rotated relative to its drill to bring different portions of its peripheral cutting structure into contact with the sidewall of the kerf formed by the row of bits in which it is

located. The inventors have discovered that the offset bits thus mounted are rotated by contact with the formation as the entire assembly is rotated, distributing the wear on the bits and causing them to drill a full size hole.



3,682,259

ROD STACKING AND HANDLING APPARATUS

Bernard G. Cintract, 2 Place des Ecoles, Boulogne 92, and Rene G. Sevin, 6 rue Pierra Ronsard, 95 Garges-les-Gonesse, both of France

Filed April 13, 1970, Ser. No. 27,930
Claims priority, application France, Jan. 9, 1970, 7000681
Int. Cl. F21b *19/00*
U.S. Cl. 175—85 10 Claims

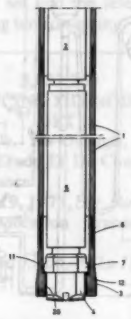
Stacking and handling apparatus for drilling rods or tubular elements, comprising a girder pivotable about a horizontal axis between a horizontal position wherein it is adapted to pick up a horizontal rod or tubular element at a storage station, and a vertical position wherein it is adapted to align said rod with the drilling axis of a derrick. Both the girder and the derrick are provided with rod or tubular element gripping and moving assemblies. Control means are provided for the girder, the derrick and their assemblies, and a switching circuit is provided to connect said control means and to control the movement of the girder, the derrick and their assemblies.

3,682,260

ROTARY PERCUSSIVE DRILL AND METHOD

Gunter Klemm, Alte Landstrasse, 5961 Rhode/Biggesee, Germany

Filed May 28, 1970, Ser. No. 41,170
Claims priority, application Germany, May 30, 1969, P 19 27 672.3; Jan. 31, 1970, P 20 04 459.1
Int. Cl. E21b *5/00*
U.S. Cl. 175—92 4 Claims



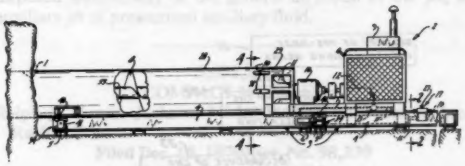
A rotary percussive drill has relatively movable inner and outer concentric drill pipes and a down-the-hole hammer that acts on the inner pipe near the cutting bits. The impact of the hammer is transmitted by an external shoulder on the inner drill to an internal shoulder on the inner drill to an internal shoulder on the outer drill adjacent the bits.

3,682,261

TUNNEL BORING MACHINE

Michael J. Bird, Clarendon Hills, Ill., assignor to Western Boring Equipment Co., Westmont, Ill.

Filed Aug. 28, 1970, Ser. No. 67,861
Int. Cl. E21c *1/10, 5/06*
U.S. Cl. 175—122 7 Claims

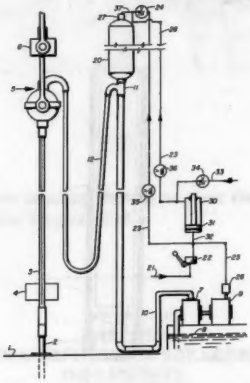


A tunnel boring machine has a carriage which slides along a track. The carriage includes a spindle for attachment to a boring auger, and a power supply which drives the spindle and also drives an hydraulic ram which moves the carriage along the track. A device for locking the ram to the track is provided, and additional track sections may be added and locked to the original track. The auger casing is attached to arms which extend forwardly from the spindle housing, and a winch assembly is used in conjunction with the spindle for retracting auger sections from the bored tunnel without moving the carriage.

3,682,262
OIL WELL DRILLING APPARATUS

William Guier, 3100 East 71st St., Tulsa, Okla.

Filed June 18, 1970, Ser. No. 47,439
Int. Cl. E21b 21/04
U.S. Cl. 175—205 4 Claims

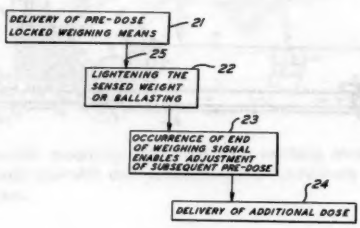


The pump of a supply of drilling mud is connected to the drill stem and a volume chamber is connected to a point between the pump and stem. A gas system for replenishing the chamber and a liquid system for washing mud from the interior of the chamber are also disclosed.

3,682,263
PROCESS FOR REGULATING INITIAL DOSES FOR THE MAKING UP OF DOSES IN TWO STAGES

Francis Bonneric, Fleury Les Aubrais, France, assignor to Service D'Exploitation Industrielle des Tabacs et des Allumettes, Paris, France

Filed June 3, 1969, Ser. No. 830,006
Claims priority, application France, June 7, 1968, 68154210
Int. Cl. G01g 13/02
U.S. Cl. 177—1 6 Claims



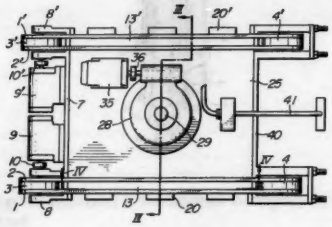
A process and a device for tobacco packing plants equipped with a weighing unit working on two quick weighing stages, the first one for the weighing of the unit quantities of tobacco and the other one for the delivery of an additional quantity, said process and device allowing to adjust accurately the two weights delivered by a temporary locking of the beam of the balance, so as to damp over thrust occuring in the course of the weighing, especially when the initial quantities delivered are approximately identical to the final ones.

3,682,264
Patent Not Issued For This Number

3,682,265
MAGNET VEHICLE

Michito Hiraoka, Ageo, and Yoshihiko Hikita, Fukaya, both of Japan, assignors to Hitachi Metals, Ltd., Tokyo, Japan

Filed May 13, 1970, Ser. No. 36,753
Claims priority, application Japan, May 16, 1969, 44/37383; Aug. 1, 1969, 44/60410
Int. Cl. B62d 55/00
U.S. Cl. 180—9.2 R 6 Claims

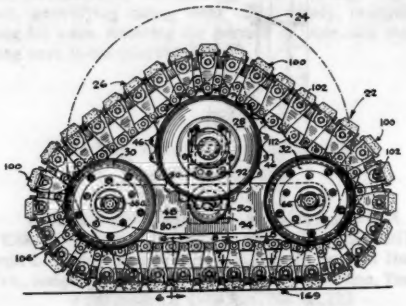


A magnet vehicle supportedly adhered to and adapted to run over an inclined wall surface of a structural member made of a strong magnetic material such as iron and steel, characterized in that said vehicle can be altered of its direction of travel as desired on said surface.

3,682,266
TRACK LAYING TRACTION UNIT FOR REPLACING A ROAD VEHICLE DRIVING WHEEL

Joseph F. Stoliker, La Grange, Ill., assignor to Tri-Lok, Inc., Grayslake, Ill.

Filed Jan. 21, 1970, Ser. No. 4,531
Int. Cl. B62d 55/04
U.S. Cl. 180—9.62 7 Claims



For reversible substitution in place of a driving wheel of a road vehicle, a track laying traction unit comprising an endless track trained around a sprocketed driving wheel attachable to the vehicle axis and two spaced support wheels on a frame detachably mountable on the vehicle axle housing. The track comprises an endless series of track shoes, each including a traction pad fixed to the central portion of a U-shaped support having spaced inwardly extending legs. The outer portions of the shoes on which the traction pads are located are swingably supported on pivots connecting successive links of an endless outer chain so that such links maintain a minimum spacing between the pads of adjacent shoes. The inner ends of the shoe legs are swingably connected to pivots that connect adjacent pairs of inner links, the two links of each such pair being independently pivoted together and defining cams that coact with the support and driving wheels to effect scissoring

of the pairs of links to accommodate shortening of the space between the inner leg ends of adjacent shoes incident to movement of the shoes around the wheels. The shoes and the inner and outer links are fashioned economically from sheet metal stampings. Internally reinforced by sheet metal stampings, the traction pads can be readily replaced on the shoes after extensive usage.

3,682,267

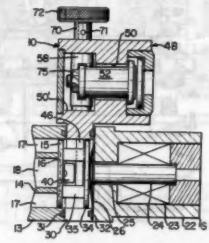
FUEL VALVE LOCKING DEVICE

Allan J. Kayser, 345 South Race St., Denver, Colo.

Filed Nov. 3, 1970, Ser. No. 86,405

Int. Cl. B60k *27/08*

U.S. Cl. 180—114 **13 Claims**



A three-position lock is disposed between a fuel valve and solenoid in a diesel engine and is selectively movable either to a closed position interrupting the flow of fuel from the fuel pump to the engine, an open position permitting uninterrupted flow of fuel to the engine, or to a neutral position permitting normal operation in direct response to energization or deenergization of the solenoid.

3,682,268

HEADBAND CONSTRUCTION FOR HEADPHONES

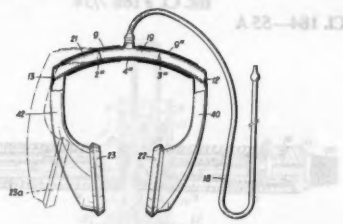
Rudolf Gorike, Vienna, Austria, assignor to Akg Akustische u Kino-Gerate Gesellschaft, Vienna, Austria

Filed April 5, 1971, Ser. No. 130,966

Claims priority, application Austria, April 8, 1970, 3226

Int. Cl. H04m *1/05;* **A42b** *1/06*

U.S. Cl. 181—31 R **14 Claims**



A headband includes at least one tubular element having a plurality of jointed parts arranged end to end and held together by a biasing spring. The individual tubular parts are advantageously formed, for example, from a single tube which is slotted on one side sufficiently to permit articulation between the individual tubular parts which are separated by the slots. A tension spring is anchored at the respective ends to the outer ends of the outermost tubular parts so that all of the parts are urged together. The jointed portions or slots are advantageously covered by a surrounding tube of a material such as a plastic. The complete headband construction advantageously includes a transversely extending tubular part which is adapted to fit over the head of the wearer, with at least one leg portion at each end which is adapted to extend outwardly from the transversely extending part to provide means for carrying the headphones on each side thereof. In one embodiment, the outer jointed part at each end of the transversely extending headband forms a downwardly extending leg to carry the earphone of the headset. In this embodiment, the sound by the spring transmitted through a tube, and all of the jointed tubular embodiment, form a closed tube construction with the joints being covered by a surrounding tube of plastic material. The downwardly extending legs on each side of the band are advantageously biased toward each other by which holds all of the jointed parts together. In one embodiment the headphones themselves are carried in tubular members which extend telescopically into the tubular leg portions of the headband set and the telescopic part is held in position by a connecting tension spring.

3,682,269

DEVICE FOR REDUCING THE NOISE OF A GASEOUS JET

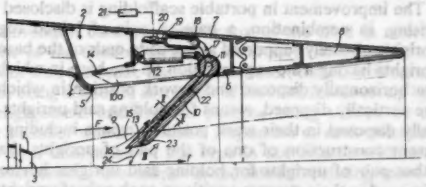
Louis Francois Jumelle, Ris-Orangis, France, assignor to Societe Nationale D'Etude Et De Construction De Moteurs D'Aviation, Paris, France

Filed April 19, 1971, Ser. No. 135,245

Claims priority, application France, April 21, 1970, 7014490

Int. Cl. B64d *33/06;* **F01n** *1/14, 1/16*

U.S. Cl. 181—33 HC **8 Claims**



A device for reducing the noise emitted by a gaseous jet as it escapes from a pipe, particularly the noise of a propulsive jet of a jet powerplant such as a gas turbine jet propulsion engine, comprises a plurality of deflecting members distributed around the jet. These members are movable between inoperative positions, outside of the jet, to operative positions in which upstream-facing parts of the members penetrate into the jet. When operative each member thus acts in a scoop-like manner to deflect a fraction of the jet and give it an outwardly-directed transverse component of velocity to assist mixing with the surrounding air. In its upstream-facing part at least one of the deflecting members is equipped with means to inject, into the jet and in a direction possessing a component disposed transversely of the general direction of the jet, an auxiliary jet of pressurized auxiliary fluid.

3,682,270

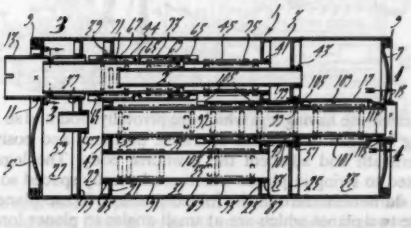
COMPACT MUFFLER

Ralph J. Haren, Jackson, Mich., assignor to Tenneco, Inc., Racine, Wis.

Filed Dec. 15, 1970, Ser. No. 98,339

Int. Cl. F01n *1/02, 1/08*

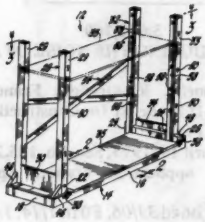
U.S. Cl. 181—54 **16 Claims**



A triflow automobile muffler has a long tuning tube located inside the inlet gas passage and charged directly by incoming

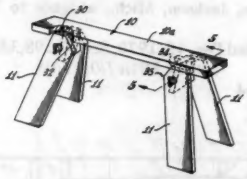
gas and also has a velocity reducing directly charged gas bleed-off adjacent the inlet of the muffler as well as other features providing improved performance and construction.

3,682,271
SCAFFOLDING
Joseph Emmett Boyd, 4462 Fenwick, Warren, Mich.
Filed July 28, 1970, Ser. No. 58,915
Int. Cl. E06c *1/20, 1/34*
U.S. Cl. 182—152 **8 Claims**



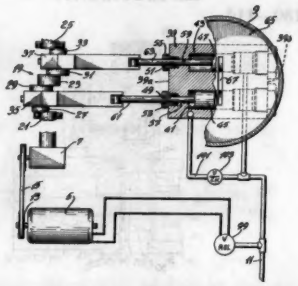
The improvement in portable scaffolding is disclosed comprising, in combination, a base, a pair of joined together uprights pivotally supported at opposite ends of the base, said uprights having a stowage position on the base in which they are horizontally disposed and a work position in which they are vertically disposed, means for holding said uprights vertically disposed in their work position, means including a different construction of one of the pair of uprights than the other pair of uprights for holding said uprights horizontally disposed in their stowage positions, each pair of uprights having no transverse bracing means therebetween above the upper halves thereof, said uprights also having no longitudinal bracing at the upper ends thereof so that said scaffolding provides unobstructed reaching space on all sides thereof between and above the tops of said uprights, said uprights having longitudinally spaced apart aperture means thereon for supporting work-upon means in vertically spaced horizontal work positions.

3,682,272
FOLDABLE SAWHORSE
Arthur Secor, 3545 West 115th St., Inglewood, Calif.
Filed Dec. 7, 1970, Ser. No. 95,612
Int. Cl. F16m *11/00*; E04g *1/32*
U.S. Cl. 182—155 **6 Claims**



A sawhorse having legs which are pivotally mounted so as to swing between the normal operative positions and positions underneath and adjacent the sawhorse body. The legs are pivoted to swing in planes which are laterally spaced so that they do not interfere in the folded position. These planes include two planes which are at small angles to planes longitudinal of the sawhorse body to achieve the necessary clearance with one another. Means are provided for releasably fastening the legs in either the extended or folded position.

3,682,273
LUBRICATING APPARATUS FOR HEAVY MACHINERY
Eusebe Allard; Julien Allard, both of 500 rue St. Jean Baptiste, and Roland Allard, 254 rue Mgr. Poirier, all of Princeville, Quebec, Canada
Filed Oct. 20, 1970, Ser. No. 82,390
Int. Cl. F16n *13/10*; F01m *1/22*
U.S. Cl. 184—27 A **4 Claims**



A mechanical greasing apparatus is reservoir, for lubricating heavy machinery. The apparatus comprises a grease reseroivr, a piston cylinder arrangement coupled to the grease reservoir, which is adapted to deliver a continuous flow of grease, and a grease pipe connected to the piston cylinder arrangement to receive the continuous flow of grease from the piston cylinder arrangement. The piston cylinder arrangement is usually operated by an electric power motor.

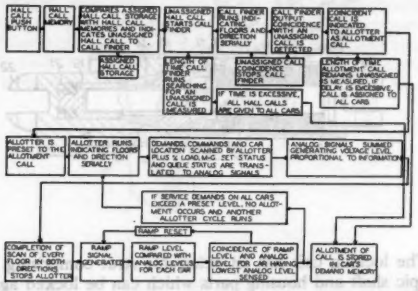
3,682,274
AIR LINE OILER
Kenneth V. Bennett, 5505 Indigo Rd, Richmond, Va.
Filed Dec. 23, 1970, Ser. No. 100,919
Int. Cl. F16n *7/34*
U.S. Cl. 184—55 A **15 Claims**

An air line oiler suitable for lubricating pneumatically driven tools provides a small amount of oil each time the tool is turned on. The oiler is attached in the air supply line at the tool and includes first and second flexible hoses forming an annular oil reservoir surrounding an air supply passage. Coupling elements close the ends of the reservoir and provide means for attaching the oiler to the tool and air supply line. A piston is located in a chamber in one coupling element, the chamber communicating with the oil reservoir and the air supply passage. When the tool is off, air pressure from the supply line compresses the piston against oil in the reservoir and a small amount of oil leaks around the piston. Thereafter, when the tool is turned on the pressure in the oil reservoir drives the piston thereby discharging a small amount of oil into the air line at a point near the tool.

3,682,275
BACKUP CONTROLS FOR PLURAL CAR ELEVATOR SYSTEM

Richard C. Loshbough, and Gerald D. Robaszkiewicz, both of Toledo, Ohio, assignors to Reliance Electric Company, Euclid, Ohio

Filed Jan. 20, 1967, Ser. No. 610,664
Int. Cl. B66b 5/00
U.S. Cl. 187—29 9 Claims

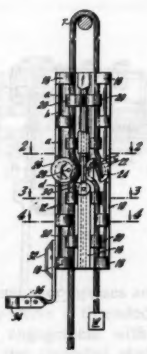

HALL CALL PUSH BUTTON
HALL CALL MEMORY
ASSIGNED HALL CALL STORAGE
UNASSIGNED HALL CALL STARTS CALL FINDER
CALL FINDER RUNS INDICATING FLOORS AND DIRECTION SERIALLY
CALL FINDER OUTPUT COINCIDENCE WITH AN UNASSIGNED CALL IS DETECTED
COINCIDENT CALL IS INDICATED TO ALLOTTER AS ALLOTMENT CALL
ALLOTTER IS PRESET TO THE ALLOTMENT CALL
ALLOTTER RUNS INDICATING FLOORS AND DIRECTION SERIALLY
DEMANDS, COMMANDS AND CAR LOCATION SCANNED IN ALLOTTER PLUS IS LOAD, M-G SET STATUS AND QUEUE STATUS ARE TRANSLATED TO ANALOG SIGNALS
ANALOG SIGNALS SUMMED GENERATING VOLTAGE LEVEL PROPORTIONAL TO INFORMATION
IF SERVICE DEMANDS ON ALL CARS EXCEED A PRESET LEVEL, NO ALLOTMENT OCCURS AND ANOTHER ALLOTTER CYCLE RUNS
RAMP RESET
COMPLETION OF SCAN OF EVERY FLOOR IN BOTH DIRECTIONS STOPS ALLOTTER
RAMP SIGNAL GENERATED
RAMP LEVEL COMPARED WITH ANALOG LEVELS FOR EACH CAR
COINCIDENCE OF RAMP LEVEL AND ANALOG LEVEL FOR CAR HAVING LOWEST ANALOG LEVEL SENSED
ALLOTMENT OF CALL IS STORED IN CAR'S DEMAND MEMORY

An elevator control for a plural car elevation system which allots each hall call to an individual car. Cars run to and stop for hall calls only when those calls have been allotted to the car. A failure to allot a hall call to an individual car within a given time interval allots the hall call to all cars. A failure to select a hall call for allotment allots all hall calls to all cars. In one embodiment, a failure to select a hall call for allotment sets all cars to run to all floors ahead of the cars in their current travel direction.

3,682,276
ROPE BRAKE

Wallace J. Krauss, 2927 Dahlia Ave., Baldwin, N.Y.

Filed Sept. 23, 1970, Ser. No. 74,558
Int. Cl. B65h 59/14
U.S. Cl. 188—65.3 1 Claim

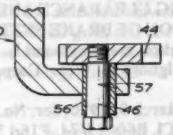


For use in assisting a mountain climber, a tree climber or the like to descend a rope, there is provided a mechanical coupling comprising back-to-back tubular members through which lengths of the rope extend. One of the tubes includes a stationary rope gripping member while the other tube includes an eccentric member that acts as a brake and which is adapted to engage and selectively impede or completely halt the downward movement of the user. A feature of this invention is that the device may be threaded on to both lengths of the rope at any location. The individual fastens one end of one length of the rope about his body and threads one of the tubes on to one of the lengths of rope such that the rope gripping member rigidly engages the rope. With both hands free, the individual may then lower himself down the other rope which is threaded onto the second tube, using the eccentric member as a brake whenever it is necessary.

3,682,277
DISC BRAKES AND MOUNTING STRUCTURE THEREFOR

Peter William Brown, 43 Hansell Drive, Dorridge, Solihull, England

Filed July 24, 1970, Ser. No. 58,089
Int. Cl. F16d 65/00
U.S. Cl. 188—73.3 7 Claims

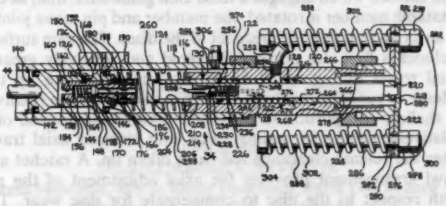


The invention concerns disc brakes of the kind in which only one of the friction elements is directly moved into engagement with the brake disc or other rotor, the other friction element being displaced as a result of reaction forces set up by such engagement and for this purpose being carried by a caliper member which is slidable responsive to such reaction forces. In a disc brake of this type in accordance with the present invention, the caliper is mounted for sliding movement on a first pin arranged between the caliper member and a fixed torque plate member adjoining the brake disc, rotation of the caliper member about said first pin being restrained by a second pin secured to one of said members in circumferentially spaced relation with said first pin. The second pin is located in an aperture in the other of said members by an annular eccentric bush which at least partially embraces the second pin and is slidably received in said aperture to enable tolerance in the circumferential spacing of the pins to be accommodated during assembly of the brake and to enable the drag force to be aportioned between the two pins.

3,682,278
TRAILER HITCH AND BRAKE ACTUATOR

Joseph L. Wherry, Perrysburgh, and Eugene DeAngelis, Toledo, both of Ohio, assignors to Toledo Stamping & Manufacturing Company, Toledo, Ohio

Filed Jan. 28, 1971, Ser. No. 110,731
Int. Cl. B60t 7/20
U.S. Cl. 188—112 25 Claims



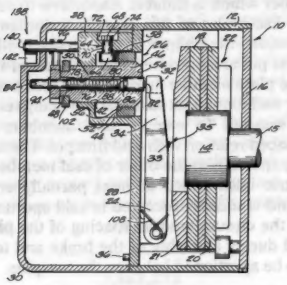
A trailer hitch is provided with a brake actuator which supplies hydraulic fluid at large volume and under high pressure to brakes of a towed vehicle. By supplying a large volume of brake fluid to the brakes, large brakes and worn brakes can be effectively accommodated by the actuator. By supplying the

fluid at high pressure, the actuator also is capable of use with large or heavy trailers and with disc brakes, for which high pressure is particularly desirable. To accomplish both large volume and high pressure, the actuator includes a primary piston for producing large volume at relatively low pressure and a smaller, secondary piston for producing higher pressure at smaller volume. The primary piston is moved directly by a brake rod and this piston, in turn, moves the secondary piston after a predetermined length of stroke. The hitch and actuator also include an accumulator which enables smoother operation, an improved break-away lever mechanism, and an improved brake fluid reservoir.

3,682,279
BRAKE ACTUATING MECHANISM FOR RAPID TAKE UP OF RUNNING CLEARANCE AND GRADUAL APPLICATION OF BRAKE SETTING FORCE

Karl Palme, Milwaukee, and Raymond L. Watts, Mukwonago, both of Wis., assignors to Wehr Corporation, Milwaukee, Wis.

Filed March 9, 1970, Ser. No. 17,603
Int. Cl. B60t *13/74*; F16d *55/39*
U.S. Cl. 188—171 **12 Claims**

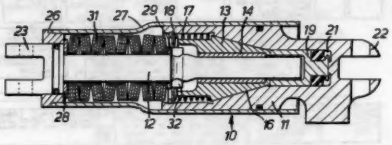


A plurality of stationary metallic discs are alternately arranged with and selectively moved into and out of braking engagement with a plurality of rotating friction discs. A rotatable member carrying an adjustable pin is movable axially to move the pin into engagement with a pressure arm which acts on the stationary discs to set the brake by interengagement of the stationary and rotating discs. The rotatable member includes a cam surface which engages a fixed cam guide such that, as the rotatable member is rotated, the member and pin move jointly in an axial direction with respect to the discs. The cam surface includes a first rise portion for rapid and relatively greater axial travel during initial brake movement to take up the release or running clearance. The cam also includes a relatively shallow rise portion to provide a gradual application of a relatively high brake setting force with reduced axial travel after the release clearance has been taken up. A ratchet and pawl arrangement provides for axial adjustment of the pin with respect to the disc to compensate for disc wear. The brake actuator is of the spring set and electromagnetically released type and includes a manual release. A damper is included in the actuator and is adjustable to provide for adjustment of the brake setting time independent of setting torque. The damper also prevents overriding of the cam guide and surface as the brake is set.

3,682,280
VEHICLE WHEEL BRAKES AND LOCKING MEANS THEREFOR

Richard T. Fowler, Kings Road, Tyseley, England

Filed April 13, 1970, Ser. No. 27,872
Claims priority, application Great Britain, April 11, 1969, 18,765/69
Int. Cl. F16d *63/00*
U.S. Cl. 188—265 **6 Claims**

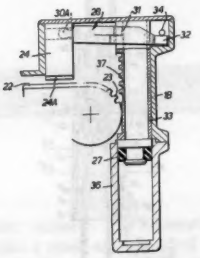


The locking unit has an extensible strut comprising telescopic shaft and housing parts which can be locked against relative axial movement by a collet type clutch comprising a plurality of axially movable wedge elements. These elements are spring biassed into wedging locking engagement between the strut parts but can be displaced axially, to free the parts by a piston projecting from a chamber formed in the housing part. A resilient device protects the strut against overload due to compressive forces.

3,682,281
VEHICLE WHEEL BRAKES

Charles Newstead, Kings Road, Tyseley, Birmingham 11, England

Filed Sept. 3, 1970, Ser. No. 69,321
Claims priority, application Great Britain, Sept. 3, 1969, 43,646/69
Int. Cl. F16d *63/00*
U.S. Cl. 188—265 **6 Claims**

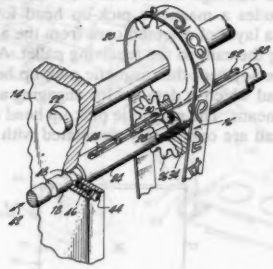


A fluid pressure slave cylinder for an internal shoe drum brake has mechanical locking means selectively operable to hold the brake shoes applied for parking purposes, the locking means including an axially movable strut member and a radially movable locking element which is moved into and out of locking engagement with the strut by a fluid pressure motor acting through a mechanical linkage. The linkage is preferably adapted to take up lost motion in the axial direction of movement of the strut, so as to retain a high braking load in the "locked" condition of the brake.

3,682,282
CLUTCH FOR PRINTING DEVICE

Victor B. Carboni, San Francisco, and Jack Dale Pavlovic, Oakland, both of Calif., assignors to Consolidated Foods Corporation, Chicago, Ill.

Filed Oct. 22, 1970, Ser. No. 82,960
Int. Cl. F16d 21/02; B41j 27/02
U.S. Cl. 192—48.91 9 Claims

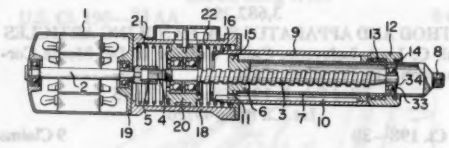


Clutch means for controlling the repositioning of one or more repositionable printing devices such as indicia carrying bands is provided in which the printing device is carried on engageable means which are in turn mounted on the clutch means. The clutch means comprises a camming means and a contacting means, the camming means being adapted to move the contacting means into engagement with the engageable means to permit the repositioning of the printing device.

3,682,283
MOTOR-DRIVEN ACTUATOR AND SAFETY OVERLOAD MECHANISM THEREFOR

Mitumasa Sato, 835-5, Hongocho, Fukuyama, Hiroshima Prefecture, Japan

Filed March 2, 1971, Ser. No. 120,231
Claims priority, application Japan, March 2, 1970, 45/17114; June 20, 1970, 45/60779
Int. Cl. F16d 71/00
U.S. Cl. 192—141 10 Claims

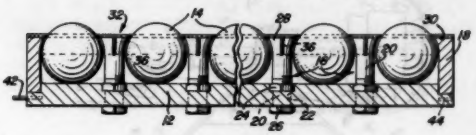


A motor-driven actuator comprises an electric motor connected to rotationally drive a threaded shaft and a piston member in threaded engagement with the threaded shaft whereby rotation of the threaded shaft effects reciprocal movement of the piston member. A safety mechanism is incorporated into the actuator to automatically deenergize the electric motor whenever an overload condition exists thereby preventing damage to the internal components of the actuator. The safety mechanism comprises a pair of limit switches and a splined coupling interconnecting the motor output shaft and the shaft and the threaded shaft allowing axial sliding movement of, the threaded shaft to effect actuation of one of the limit switches in response to an overloading of the actuator.

3,682,284
ROLLING SURFACE CONSTRUCTION

Minoru Sakamoto, 3005 Uglena St., Honolulu, Hawaii

Filed Oct. 29, 1970, Ser. No. 85,165
Int. Cl. B65g 13/00
U.S. Cl. 193—35 MD 14 Claims



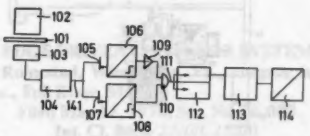
A surface defined by a plurality of hard balls retained in rolling captivity with a portion of the outer surfaces thereof continually exposed for the rolling support of a person or object thereon. The balls are retained between friction adjusting bolts or within a crossed rail grid, and are surrounded by bolt retaining cover plates or a unitary cover panel incorporating ball accommodating openings therein.

3,682,285
Patent Not Issued For This Number

3,682,286
METHOD FOR ELECTRONICALLY CHECKING COINS

Georg Prumm, Kolner Strasse 235, D4283 Bergneustadt, Germany

Filed July 17, 1970, Ser. No. 55,752
Claims priority, application Germany, July 19, 1969, P 19 36 898.0; Sept. 5, 1969, P 19 45 018.1; Nov. 4, 1969, P 19 55 333.4; March 2, 1970, P 20 09 622.4
Int. Cl. G07f 3/02
U.S. Cl. 194—100 A 25 Claims



A method of electronically checking coins which comprises the steps of performing an indirect measuring operation upon the coins to be checked, obtaining electrical signals by virtue of the measuring operation characteristic of the coins undergoing checking. The thus obtained electrical signals are at least partially stored, the measuring operation is completed and the thus checked coins are evaluated to determine whether the coins have generated a signal characteristic of the specific type of coin desired to be checked.

3,682,287
Patent Not Issued For This Number

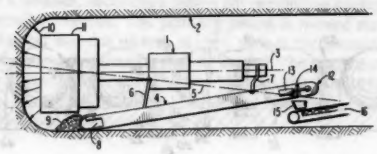
3,682,288
SELF-LOADING CONVEYOR

Marcel Montacie, 46 rue Remy Dumoncel, Paris 14e, France

Filed Sept. 2, 1970, Ser. No. 69,018
Claims priority, application France, Sept. 3, 1969, 6930050
Int. Cl. B65b 65/02
U.S. Cl. 198—7 8 Claims

A self-loading conveyor for the removal of excavated material from a cavity produced by a boring or winning

machine, comprising an inclined channel and material removing scrapers driven by an endless chain and adapted to travel in the channel. A collecting foot for the excavated material is disposed at the lower end of the channel and is provided with a protective cover. A driving head is disposed at the upper end



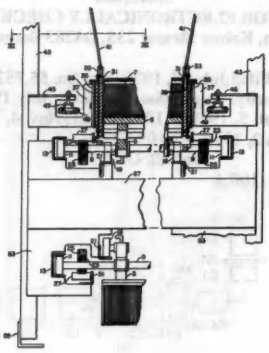
of the channel to drive the endless chain. The collecting foot has lateral apertures and is reciprocable in a direction parallel to the wall of the cavity from which the excavated material is to be removed, thereby effecting the collecting of the excavated material through the lateral apertures on each side of the foot.

3,682,289

APPARATUS FOR GUIDING A CONVEYOR

Joseph K. Kraft, Verona, N.J., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Nov. 23, 1970, Ser. No. 91,960
Int. Cl. B66b 9/12
U.S. Cl. 198—16 **6 Claims**



The steps on a moving stairway are guided laterally by rollers bearing against the back of the skirts on either side of the stairway. The rollers are positively related to the steps to preclude an object from becoming wedged between the skirt and steps due to the effect of their relative movement.

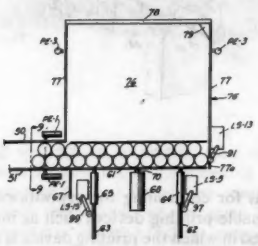
3,682,290

CAN PALLETIZER

George E. Von Gal, Jr., 3408 Thomas Ave.; Mabry S. Phillips, Jr., 3144 Woodfern Dr., and Lawrence A. Hutchinson, 3431 Cloverdale Rd., all of Montgomery, Ala.

Filed Oct. 31, 1969, Ser. No. 873,054
Int. Cl. B65g 47/42
U.S. Cl. 198—21 **9 Claims**

This invention relates generally to a handling system and method of arranging a group of cans into a predetermined pattern and thereafter transferring successive groups of arranged cans to a pallet to form a series of layers of cans thereon. More particularly this invention includes an endless conveyor means for successively feeding a series of cans along a first predetermined path with means located adjacent said endless conveyor for arranging cans moving along the endless conveyor into two rows of longitudinally staggered cans as they move along the conveyor. Operatively associated with the can feeding and orienting means adjacent one end thereof is pushover mechanism for moving substantially simultaneously the two rows of the oriented cans from the conveyor onto an accumulator tray. A receiving pallet means is supported adjacent the can accumulator means. A carriage support mechanism is supported above the accumulator and the receiving pallet for transferring a group of the oriented cans from the accumulator to the receiving pallet in such a manner as to form a series of layers of the cans on the receiving pallet. A slip-sheet layer separator means is disposed adjacent the receiving pallet and beneath the carriage transfer means. The carriage transfer means includes a magnetic pick-up head for engaging and picking up a layer of oriented cans from the accumulator and transferring the cans to the receiving pallet. Also disposed on the carriage adjacent the magnetic pick-up head is a vacuum pick up head which is detailed for engaging a slip-sheet layer separator means. The magnetic pick-up head and the vacuum pick-up head are operatively associated with each other and



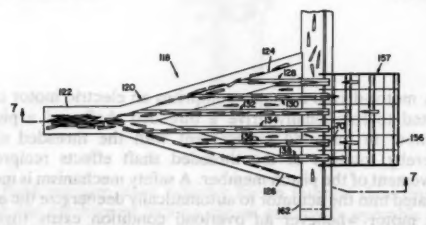
controlled in such a manner that as the magnetic pick-up head moves from a position over the can accumulator means to a position over the receiving pallet, the vacuum pick-up head will move concurrently therewith to a position over the slip-sheet layer separator means for engaging and picking up a slip-sheet layer separator, and as the carriage is moved to position the magnetic pick-up head over the accumulator tray, the vacuum pick-up head is moved to a position to deposit a slip-sheet layer separator on top of a layer of oriented cans which have been stacked on the receiving pallet. Operatively associated with the receiving pallet means is a pallet magazine which contains a series of pallets. The pallet magazine includes means for dispensing pallets individually to the pallet receiving station as they are required. A conveyor means is operatively associated with the receiving pallet means for transferring a loaded pallet away from the palletizing station for further handling as required.

3,682,291

METHOD AND APPARATUS FOR HANDLING ARTICLES

Ralph C. Lent, Lafeyette, Calif., assignor to Del Monte Corporation, San Francisco, Calif.

Filed Feb. 2, 1970, Ser. No. 7,615
Int. Cl. B65g 47/26
U.S. Cl. 198—30 **9 Claims**

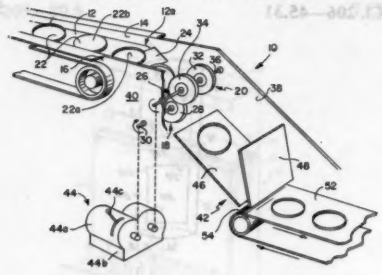


A method and apparatus for handling elongated agricultural articles (e.g. asparagus tips) and particularly for feeding such articles in single file in a plurality of lanes. The article feeding apparatus incorporates a V-shaped trough feeding a plurality of V-shaped lanes down an incline for controlled feeding of multiple lanes of the orientor devices.

3,682,292
POWERED LID ORIENTOR

William G. Drew, c/o Automation Systems, Inc., 360 Amherst Street, Nashau, N.H.

Filed Feb. 26, 1971, Ser. No. 119,166
Int. Cl. B65g 47/24
U.S. Cl. 198—33 AD 12 Claims

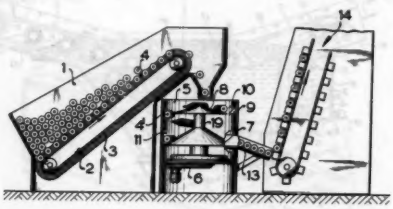


A machine for orienting skirted lids has a pair of counter-rotating brush elements arranged to draw a lid into the nip between them and to expel the lid to a discharge location. One brush element engages the lid along a generally central diametrical portion thereof and the other brush element engages the lid at two side portions, i.e. along chords parallel to the diameter, spaced on either side of the central portion. The different engagements of the brush elements with a lid oriented with the skirt facing upward, and with a lid in a skirt-down orientation, enable the brush elements to discharge the differently-oriented lids with different rotational velocities such that all the lids end up with the same orientation on the discharge location.

3,682,293
DEVICE FOR ORIENTING AND ISOLATING ELONGATED WOUND TEXTILE MEMBERS

Heinz Kamp, Rickelrath, Germany, assignor to W. Schlafhorst & Co., Monchengladbach, Germany

Filed April 13, 1970, Ser. No. 27,634
Claims priority, application Germany, April 12, 1967, P 19 18 627.7
Int. Cl. B65g 47/24
U.S. Cl. 198—33 AA 6 Claims

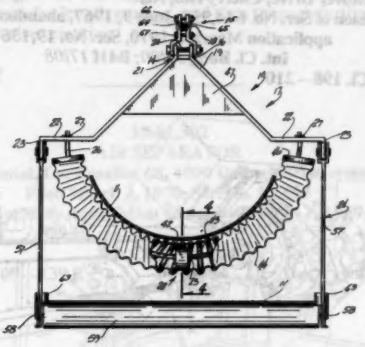


Device for orienting and isolating elongated textile members, such as cops, for example, includes a receptacle having a circular cross section and at least one insert rotatably mounted in the receptacle and having a surface inclined with respect to the receptacle wall, the rotary insert and the receptacle wall defining a gap therebetween at least over a major part of the periphery thereof, the gap being smaller in width than the diameter of textile members that are to be oriented and isolated.

3,682,294
TROUGHING IDLER ASSEMBLY

Robert C. Milek, Blair, Nebr.

Filed April 29, 1970, Ser. No. 32,975
Int. Cl. B65g 15/08
U.S. Cl. 198—192 A 9 Claims

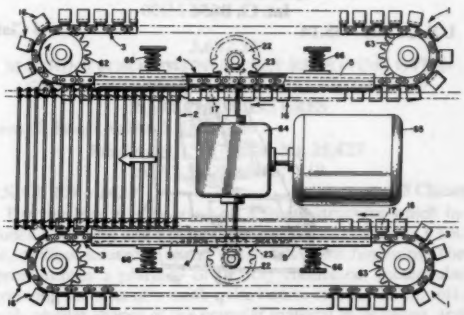


An assembly for supporting a conveyor belt, the assembly comprising a frame pivotally connected to a cable or the like; a rigid semicircular or concave bar secured at each end and extending downwardly from the frame; arcuately spaced tubes frictionally secured to the bar with rotatable bearings and cylindrical spacer elements concentrically disposed thereover; a rotatable helical spring disposed concentrically of the spacers and extending substantially the length of the rod; a bellows-covering surrounding the helical spring; wherein the assembly forms a rigid troughing transverse support for a conveyor belt.

3,682,295
EDGE DRIVEN CONVEYOR SYSTEM

Gerald C. Roinestad, Winchester, Va., assignor to Ashworth Bros., Inc., Fall River, Mass.

Filed May 11, 1970, Ser. No. 36,008
Int. Cl. B65g 23/00, 15/00
U.S. Cl. 198—203 19 Claims



A conveyor system including an endless flat belt capable of bending in an edgewise direction and a supporting and driving assembly which supports the belt in any of a variety of endless paths which may include straight runs and curved runs, including a friction edge drive in combination with any of several means to maintain the belt in the requisite driving engagement with the edge drive.

3,682,296

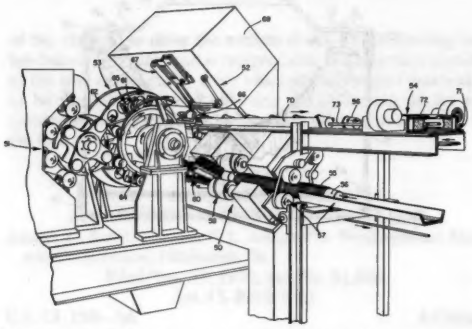
APPARATUS FOR PRINTING CONTAINER SIDEWALLS

Eric S. Buhayar, 215 Riverview Road; James E. Hazard, 213 Elm Ave., both of Swarthmore, Pa.; John J. Jaagus, 327 Netherington Drive, Broomall, Pa.; Fred W. Werner, 225 Mount Alverno Road, Media, Pa.; Robert W. Wheeler, 305 Manor Circle, Milmont Park, Pa., and Robert C. Crowe, 139 Westover Drive, Cherry Hill, N.J.

Division of Ser. No. 644,955, June 9, 1967, abandoned. This application March 4, 1970, Ser. No. 19,136

Int. Cl. B65g *29/00*; B41f *17/08*

U.S. Cl. 198—210 11 Claims



Apparatus for printing indicia in a continuous operation on the side walls of containers such as cups having a generally circular cross-section and a cylindrical or frusto-conical shape, including a turret assembly for supporting the containers. The turret assembly consists of container-supporting mandrels mounted on a frame which rotates the mandrels through an orbital path having an object pickup section, an object rotate section, an object treatment section and an object removal section. The turret assembly further includes object rotate means to apply a rotational moment to the mandrells as they pass through the object rotate section.

3,682,297

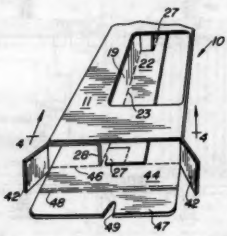
CARTON FOR TAPE CARTRIDGES

Timothy K. Austin, Santa Ana, and Fred J. Johnson, Long Beach, both of Calif., assignors to Container Corporation of America, Chicago, Ill.

Filed April 20, 1970, Ser. No. 29,807

Int. Cl. B65d *25/00*

U.S. Cl. 206—45.14 4 Claims



A carton for tape cartridges has an interior partition wall extending between top and bottom panels. The interior partition wall and a side wall have a tape cartridge located therebetween and the cartridge is prevented from movement in directions normal to such walls by at least one stop member formed from said interior wall.

3,682,298

PACKAGING AND DISPLAY CASE FOR CIGARETTE LIGHTER

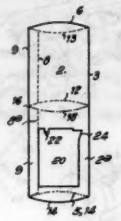
Jacques Guillerm, 18 bis, rue Victor-Hugo, Saint-Leu-La-Foret, France

Filed Oct. 2, 1968, Ser. No. 764,398

Claims priority, application France, Oct. 11, 1967, 67124035

Int. Cl. B65d *25/54*, *85/00*

U.S. Cl. 206—45.31 5 Claims



The invention is concerned with a combined packaging and display case for cigarette or pipe lighters and similar small items formed of a suitable material such as cardboard which is scored for suitable folding and gluing to define a two section container, the removable bottom portion of which has a suitable opening therein for mounting and displaying the lighter and the top portion of which, when separated from the bottom portion, provides a suitable closed shipping container for the lighter.

ERRATUM

For Class 206—50 see:
Patent No. 3,682,816

3,682,299

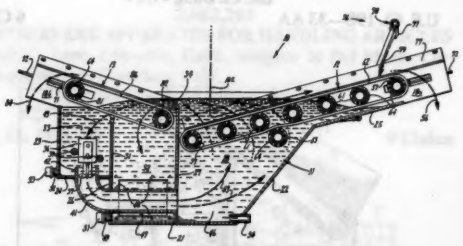
GRAVEL WASHER AND TRASH SEPARATOR, PROCESS AND APPARATUS

Vrain C. Conley, and Paul R. Zufelt, both of Healdsburg, Calif.

Filed March 30, 1970, Ser. No. 23,892

Int. Cl. B03b *7/00*

U.S. Cl. 209—17 7 Claims

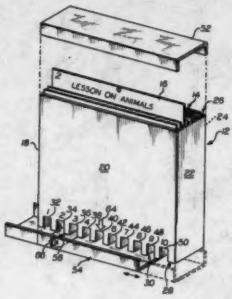


The process of cleaning gravel of trash by depositing gravel in the upwardly moving portion of a circular current of water and supporting the gravel therein on an upwardly moving foraminous conveyor belt. Lighter trash materials are carried by current over a weir and by a downwardly moving current onto a second upwardly moving conveyor belt for discharge. Gravel is further washed by water spray on the first conveyor belt before discharge.

The gravel washer has an impeller mounted in a tank to direct a current horizontally against an inclined baffle and thence upwardly through the foraminous gravel conveyor. Im-

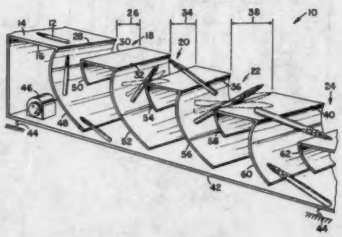
peller suction creates downward current through the foraminous trash conveyor belt.

3,682,300
INFORMATION RETRIEVAL SYSTEM
Aaron L. Heller, 23 West 68th Street, New York, N.Y.
Filed Nov. 27, 1970, Ser. No. 93,285
Int. Cl. B07c
U.S. Cl. 209—80.5 **7 Claims**



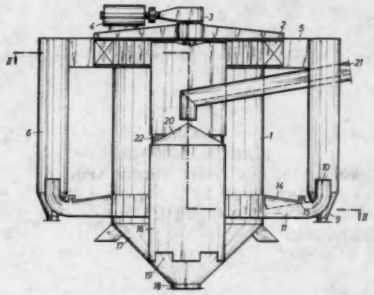
An information retrieval system includes a housing in which a plurality of information bearing media, each having a tab-like protrusion cooperatively associated therewith at least one of a plurality of desired retrieval code positions, is retrievably stored in a stacked arrangement. The housing includes a slotted portion having a plurality of spaced apart slots which each extend transversely of the stack, each slot corresponding to a particular retrieval code position. The slots communicate with the stack and the exterior thereto. The tab-like protrusions are insertable in these slots. A selector means, such as a selector bar, is also provided which selector is selectively and removably registrable in a slot for engagement with the associated tab-like protrusion of the medium or media to be retrieved.

3,682,301
METHOD AND APPARATUS FOR ORIENTING ELONGATED ARTICLES
Edward E. Ross, San Rafael, Calif., assignor to Del Monte Corporation, San Francisco, Calif.
Filed Feb. 2, 1970, Ser. No. 7,665
Int. Cl. B07c *5/06*
U.S. Cl. 209—85 **5 Claims**



A method and apparatus for lengthwise orientation of elongated articles having a center of gravity displaced from the geometric center. Articles in random lengthwise orientation are moved along a path interrupted by at least one gap. The gap length along the direction of movement is sized in relation to a given range of article length so that the articles of one orientation tilt about a fulcrum near one edge of the gap and drop through with their heavier end foremost. In one form articles of heavier end foremost orientation are segregated from the reversely orientated articles. In another form lighter end foremost articles which initially bridge the gap are tilted backwards and dropped through the gap with their heavier ends foremost. In another form a plurality of gaps are interposed in the path of movement with successively increasing gap lengths to both grade and orient articles of increasing length ranges. In still another form articles are dropped through gaps for length grading, and then through further gaps for lengthwise orienting.

3,682,302
AIR SEPARATOR
Paul Bernutat, Cecilienallee 68, 4000 Duesseldorf, Germany
Filed March 2, 1970, Ser. No. 15,495
Claims priority, application Germany, March 1, 1969, P 19 10 501.2
Int. Cl. B07b *4/02*
U.S. Cl. 209—139 R **6 Claims**

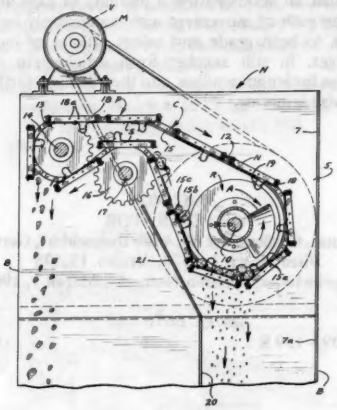


Air separator with cylindrical housing for the separating chamber and with an inwardly located radial impeller, in which a plurality of outwardly located cyclones are, by means of entrance passages, arranged behind the radial impeller in such a way that the direction as well as the magnitude of the absolute exit velocity of the separating air will when entering the entrance passages not be subjected to any change.

3,682,303
MACHINE FOR CONTINUOUSLY REMOVING OVERSIZED UNDESIRABLE MATERIAL FROM CROP MATERIAL MIXTURES
Leon G. Feterl, Salem, S. Dak.
Filed April 3, 1970, Ser. No. 25,427
Int. Cl. B07b *13/16, 1/10*
U.S. Cl. 209—243 **5 Claims**

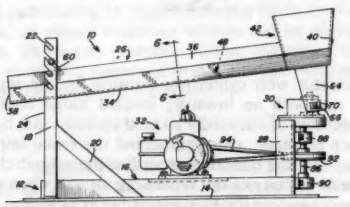
The machine is supported on a frame structure which includes a housing and has mounted within such housing a single, endless screening apron which has multi functions. The apron utilizes a plurality of flexibly connected, rectangular screening sections of a mesh quite coarse relative to the relatively regular shapes of the granular material to be saved, and substantially smaller than the coarse, undesirable trash material. The material mixture such as harvested crops including fragments of stalks, leaves, pods, cobs and so forth which in harvesting are intermingled with the desirable granular crop material, is constantly fed axially into a loop portion of one end of the said apron, wherein travel of the apron and at the bottom of the loop portion, the smaller granular material readily flows through and is dropped from the coarse mesh.

The over-sized material travels past this point and then over a serpentine or tortuous course which causes the pans to spread



widely apart, dropping the trash material at a predetermined area.

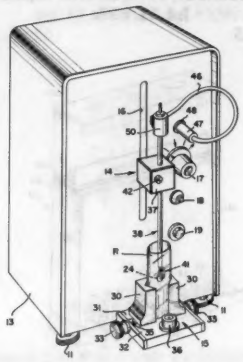
3,682,304
SLUICE ASSEMBLY
Emil L. Seidel, 3150 East Prince, Tucson, Ariz.
Filed Jan. 20, 1970, Ser. No. 4,266
Int. Cl. B03b *3/12*
U.S. Cl. 209—443 **8 Claims**



An inclined sluice pan is supported at its lower end by a crank suspended from an vertically adjustable axis. The other end is reciprocated horizontally along the longitudinal axis of the pan, whereby the total reciprocatory movement of the pan has at least two components, one component along the horizontal and one component which varies from a minimum to a maximum between the ends of the pan of an angular nature around the lower suspension support.

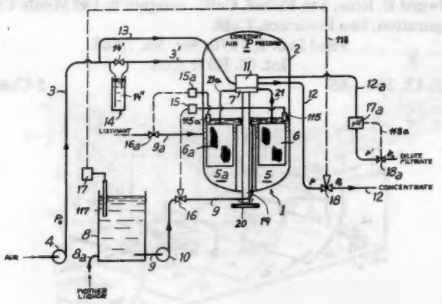
3,682,305
DECANTING AND FILLING APPARATUS
Joseph Buchler, 1327 16th St., Fort Lee, N.J.
Filed Feb. 20, 1970, Ser. No. 13,129
Int. Cl. B01d *21/00;* **B03d** *13/00*
U.S. Cl. 210—83 **31 Claims**

An apparatus for decanting liquid from, and introducing liquid to a vessel such as a centrifuge tube has an upright hollow probe or pipet which is connected to a vertical drive and can ride up and down with its lower end in a centrifuge tube held in a clamp on the apparatus. This lower end is provided with a pair of fluid-sensing contacts connected to a control circuit having a selector switch for "raise" and "lower" modes. Liquid can be passed through the probe in either direction by a continuously operable pump. In the "down" or "lower" position of the selector switch the lower end of the probe automatically follows the falling level, as the liquid is pumped out. In the "up" or "raise" position of the selector switch the probe



rises to follow the liquid level as the liquid is pumped into the centrifuge tube. An override switch is provided for vertical displacement of the probe whether or not the contacts are immersed, in the "up" and "down" positions, respectively.

3,682,306
FILTERING INSTALLATION
Guy Gaudfrin, 67, rue de l'Assomption, Paris 16°, France
Continuation of Ser. No. 780,389, Dec. 2, 1968, abandoned.
This application Sept. 8, 1970, Ser. No. 70,534
Claims priority, application France, Dec. 1, 1967, 67130653
Int. Cl. B01d *29/36, 29/42*
U.S. Cl. 210—96 **5 Claims**

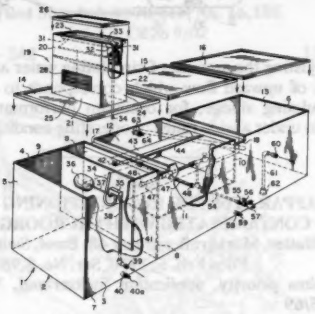


In a system wherein a closed vessel is divided into several compartments, including a charging compartment and a washing compartment, which are successively traversed by an array of filter vanes rotating about an axis, air from a compressor maintains a constant pressure in the vessel whereas the pressure differential effective across the filter screens of the vanes is varied by regulators responsive to the rate of filtrand supply (in the charging compartment) and to the composition of the existing wash water (in the case of the washing compartment).

3,682,307
WATER FILTER

William J. Cook, and Robert L. McCain, both of 207 Maple Drive, Daingerfield, Tex.

Filed Aug. 21, 1970, Ser. No. 65,807
Int. Cl. B01d *23/24, 23/20*
U.S. Cl. 210—123 1 Claim

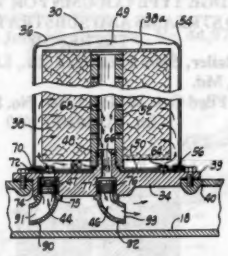


A water filter system particularly for iron removal having an aerator, a sedimentation chamber fed by the aerator, a filtration chamber connected with the sedimentation chamber, a gravity drain in the lower portion of the filtration chamber, and a storage chamber connected with the gravity drain. Connections are provided for back washing the filtration chamber without removal of its filtering material. Water for treatment is fed to the aerator wherein it is oxidized and drains to the sedimentation chamber from which it overflows into the filtration chamber, the water passing through the filtering material and exiting through a drain manifold into the storage chamber.

3,682,308
ENGINE COOLANT FILTER

Charles L. Moon, Brecksville, Ohio, assignor to White Motor Corporation

Filed Dec. 3, 1970, Ser. No. 94,782
Int. Cl. B01d *35/02*
U.S. Cl. 210—136 12 Claims



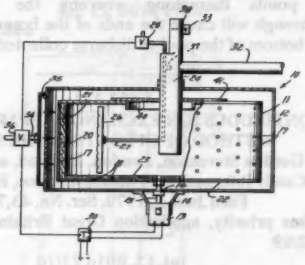
A filter for engine coolant in an engine cooling system comprises a filter base connected to a coolant conduit and a filter body which is detachable from the base for replacement. Check valves are carried in the base filter inlet and outlet passageways so that the filter is replaced without coolant losses. A pressure differential is created across the filter assembly so that part of the coolant flowing through the conduit is forced through the filter. In one embodiment, the filter includes a ram tube and an ejector tube for creating the pressure differential. In another embodiment, a flow restricting orifice is provided in the conduit between the filter inlet and outlet passageways.

3,682,309
Patent Not Issued For This Number

3,682,310
APPARATUS FOR LIQUID WASTE TREATMENT AND MEANS FOR STRIPPING SAME

Joseph M. Valdespino, 3609 Old Winter Garden Road, Orlando, Fla.

Filed Oct. 12, 1970, Ser. No. 80,000
Int. Cl. B04b *11/04*
U.S. Cl. 210—140 13 Claims

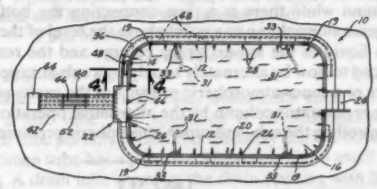


A centrifuge filter apparatus for filtering fluids is provided having a centrifuge drum with a filter medium along its periphery so that when the drum is rotated, fluids will be directed against and through the filter medium and through perforations in the periphery of the drum. A stream of air is intermittently directed against material accumulating on the filter medium for loosening the material and a vacuum is used to remove the loosened material for periodic cleaning of the filter. A stream of fluid may be directed from the outside of the periphery of the drum to assist in loosening accumulated materials trapped by the filter and the bottom of the drum may be perforated and lined with filter material for fluids to pass through when the periphery filter material is clogged. The air stripping jet is adapted to move closer to the periphery wall of the centrifuge drum when stripping materials and a novel combination vacuum seal and brake for the centrifuge drum is provided.

3,682,311
SWIMMING POOL WATER CIRCULATION SYSTEM

Kenneth M. Bishop, 310 Market, Carlisle, Iowa

Filed Jan. 8, 1970, Ser. No. 1,438
Int. Cl. E04h *3/20*
U.S. Cl. 210—169 5 Claims



A swimming pool system including a system chamber formed in part by a wall of the swimming pool and close to the ground surface covered by coping material wherein water inlet conduits for filling the pool extend from a filter in the system chamber directly into the pool and along the interior wall adjacent the top thereof, outlet openings being spaced along the length of the inlet conduit to uniformly distribute water into the pool, an outlet conduit extending on the interior of the pool and directly into the system chamber, skimmer

units being located in the walls of the pool and interconnected by a pipe extending below the coping freely to the system chamber, and all pipes and conduits extending to a remotely located pump from the system chamber in a passageway close to the ground surface and adapted to be exposed by the removal of a cover. The inlet conduit is spaced a predetermined distance from the pool walls to provide a finger hold rail around the pool walls. The inlet conduit may be selectively rotated to direct the water either downwardly into the pool or upwardly for cooling in the night air and to provide a series of fountains around the periphery of the pool. When the water is directed downwardly it will tend to disburse the sediment on the bottom of the pool such that it may rise and be removed by the skimmers. Further agitation of the sediment may be had by connecting a length of hose to the water inlet pipe at spaced apart points therealong whereby the water flowing therethrough will cause the ends of the hoses to move about on the bottom of the pool to disburse collected sediment.

3,682,312

CONTINUOUS ION EXCHANGE APPARATUS AND METHOD OF OPERATING THE SAME

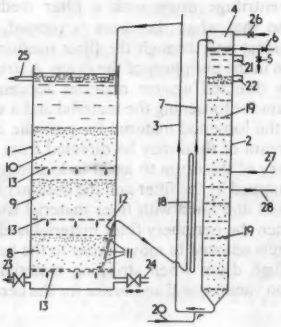
David Gordon Stevenson, London, England, assignor to Paterson Candy International Limited, London, England

Filed June 5, 1970, Ser. No. 43,796

Claims priority, application Great Britain, June 9, 1969, 28,992/69

Int. Cl. B01d *23/10*

U.S. Cl. 210—189 **12 Claims**



A continuous ion-exchange apparatus having a multi-stage open ion-exchange column and a multi-stage closed regenerator column in which the mixed resins from the lower part of the ion exchange column are withdrawn by means of a pipe and are conveyed to an air cavity at the top of the regenerator column while there is a pipe connecting the bottom of the regenerator column to a point above the level of the surface of the liquid in the ion-exchange column and the resins are induced to flow by alternately supplying a sub-atmospheric pressure or a super-atmospheric pressure at the cavity at the top of the regenerator column by the alternative operation of valves controlling the sub- and super-atmospheric pressures.

3,682,313

APPARATUS FOR THE BIOLOGICAL PURIFICATION OF WASTE WATER

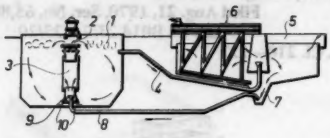
Endre Abraham, and Laszlo Tasfi, both of Budapest, Hungary, assignors to Tatabanyai Szenbanyak, Tatbanya, Hungary

Filed March 2, 1970, Ser. No. 15,416

Int. Cl. C02c *1/10*

U.S. Cl. 210—195 **3 Claims**

Sewage treatment apparatus which is constituted of an oxygenating tank in which water and sludge circulate upwardly through an elongated member, a pipe connecting the oxygenating tank with a settling tank where the sludge is settled out, and a recirculation pipe returns the sludge from the settling tank to the oxygenating tank wherein means are provided



for adjusting the amount of circulating water and sludge to an extent of upward flow which corresponds to the amount of recirculating sludge, for optimum performance of the apparatus under a wide range of operating conditions.

3,682,314

APPARATUS FOR RECONDITIONING LIQUIDS CONTAMINATED WITH MICROORGANISMS

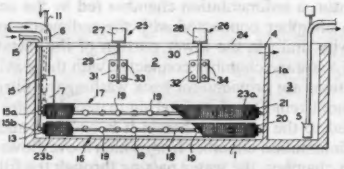
Max Blatter, Markgraflerstrasse 48, Basel, Switzerland

Filed Feb. 5, 1970, Ser. No. 8,988

Claims priority, application Switzerland, Nov. 24, 1969, 17465/69

Int. Cl. C02b *1/38*

U.S. Cl. 210—199 **5 Claims**



A method of reconditioning a liquid substance that has been contaminated with micro-organisms, in which the substance to be reconditioned is introduced into a container and ozone is conducted through the substance while this is being agitated. The liquid substance may be ozonized in two consecutive stages, the ozone in the first stage being at a gauge pressure, whereas in the following stage it is decompressed substantially to atmospheric pressure. Apparatus for performing the method is also described and claimed.

3,682,315

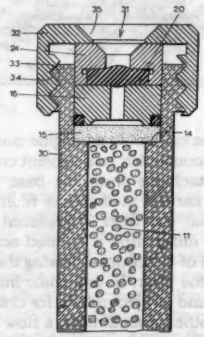
CARTRIDGE TYPE COLUMN FOR TREATMENT OF LIQUID STREAMS AND SUBSTRATE ENCLOSURE THEREFOR

Wolfgang Haller, 5400 Pooks Hill Rd., Linden Hill, Apt. 912, Bethesda, Md.

Filed Oct. 20, 1969, Ser. No. 867,704

Int. Cl. B01d *13/00*

U.S. Cl. 210—233 **13 Claims**



A cartridge type column which eliminates stopcocks by em-

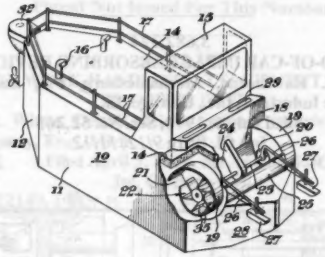
ploying self sealing puncturable septum means for connecting the column to the fluid lines.

3,682,316

APPARATUS FOR THE COLLECTION OF BUOYANT FOREIGN MATTER

Frank Arthur Oakley Waren, 301A Kingsway, Hove, Sussex, England

Filed March 3, 1970, Ser. No. 16,195
Int. Cl. C02b *9/02*
U.S. Cl. 210—242 **11 Claims**



Apparatus for collecting buoyant foreign matter (particularly oil) floating on the surface of water comprising a tank adapted to float on water, an outlet at the bottom of the tank, an inlet track positioned to draw in water at or near the surface and means for pumping water together with the foreign matter through the inlet track into the tank, where the foreign matter rises and is trapped in the tank, whilst the water passes out through the outlet. The bottom of the tank is preferably open. The pumping means may comprise one or more impellers located in the inlet track driven by a motor carried on the tank.

3,682,317

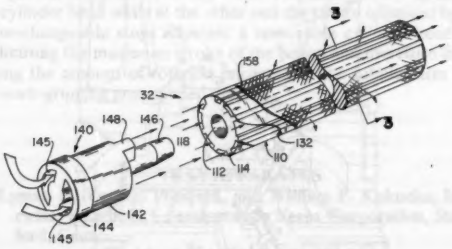
Patent Not Issued For This Number

3,682,318

TUBULAR ULTRAFILTRATION MEMBRANE AND SUPPORT

Peter N. Rigopulos, Boxford, Mass., assignor to Amicon Corporation, Lexington, Mass.

Filed June 10, 1970, Ser. No. 44,974
Int. Cl. B01d *31/00*
U.S. Cl. 210—321 **10 Claims**



An ultrafiltration device comprising an anisotropic ultrafiltration membrane tube secured around a liquid-impermeable cylindrical core. The core has a plurality of peripherally spaced, axial ribs along its outer surface, which define therebetween a plurality of axial grooves. The anisotropic membrane comprises a polymer film comprising a porous support layer and a less porous barrier layer integral therewith at one face of the support layer, and the barrier layer of the membrane tube is in contact with the ribs, so that the membrane defines, with the grooves, a plurality of axially extending channels adjacent this barrier layer and having a fluid inlet at one end and a fluid outlet at the other.

3,682,319

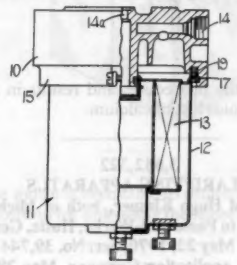
Patent Not Issued For This Number

3,682,320

FILTER ASSEMBLIES

Kenneth Holyoak, Mistral, Swinton Rise, Ravenshead, Nottingham, England

Filed May 3, 1971, Ser. No. 139,807
Int. Cl. B01d *27/00*
U.S. Cl. 210—444 **3 Claims**



This invention relates to a filter assembly of the kind including a head (which may be a separate part or which may be formed integrally with another part such as an engine block) having an inlet and an outlet, together with a filter unit which is attachable to the head and which is arranged in use to receive a fluid entering said inlet, the fluid then being filtered by the filter unit before flowing out of the outlet. The head is formed with an axially directed annular rim having on its inner surface an annular groove in which is located a retaining clip in the form of a length of wire. The filter unit has at one end a laterally outwardly projecting lip and the depth of the groove in relation to the thickness of the wire is such as to permit the lipped end of the filter unit to be inserted into the axially direction rim of the head and past the retaining clip. Means are also provided to draw together the ends of the retaining clip after the filter unit has been thus inserted so that the clip will engage the lip of the filter unit while a portion of the clip remains within the groove to prevent detachment of the filter unit from the head.

3,682,321

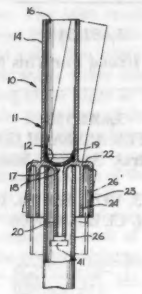
THROW-AWAY FILTER ASSEMBLY

Anthony William Smith, Las Vegas, Nev., assignor to Volu-Sol Chemical and Manufacturing Company, Inc.

Filed March 2, 1970, Ser. No. 15,635
Int. Cl. B01d *29/04*
U.S. Cl. 210—477 **6 Claims**

The filter assembly has a body which rests upon the open end of a test tube. The specimen is introduced into the specimen tube portion of the filter assembly and the bottom of the specimen tube has a partition which contains a small drain opening. A drain tube connects the drain opening with the interior of the test tube. A filter element is located across the specimen tube and can be supported by the partition or by a separate support member. The partition has a portion extending from the specimen tube which mounts a plurality of sleeves or projections extending downwardly to engage the mouth of the test tube in order to maintain the filter assembly generally upright. The body can be molded of plastic and the filter element is easily assembled so that the complete filter assembly is inexpensive and can be thrown away after each procedure. The filter assembly can be employed in an im-

proved procedure for calcium determination. This procedure eliminates the use of a centrifuge to separate the precipitate



produced during the procedure, and results in considerable time saving and avoids loss of calcium.

3,682,322

CLARIFYING APPARATUS

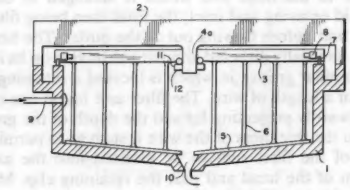
Oswald Busse, and Hugo Klesper, both of Michelbach, Germany, assignors to Passavant-Werke, Hutte, Germany

Filed May 22, 1970, Ser. No. 39,744

Claims priority, application Germany, May 28, 1969, P 19 27 179.5

Int. Cl. B01d *12/00*

U.S. Cl. 210—530 5 Claims



The invention relates to clarifying apparatus, such as settling tanks, provided with a bridge member which rotates in a horizontal plane above the suspension of solids being treated in the tank. The tank is free of any central supporting column for the bridge member and the bridge is supported at least at one end by the outer wall of the tank. A bridge support member, rigid with the tank, extends over the tank above the rotatable bridge member and provides a central pivot for rotation of the bridge member. The bridge support member may extend diametrically across the tank and may support the bridge member.

3,682,323

TEST GLASS HOLDER

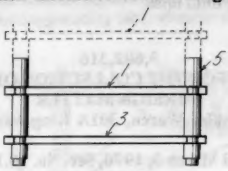
Nils R. Bergquist, Sibyllegat 75, S-114 43; Jan A. Soderholm, Vastmanagatan 77, S-113 26, and Sven H. Skoldenfelt, Sturegatan 62, S-114 26, all of Stockholm, Sweden

Filed Sept. 18, 1969, Ser. No. 858,955

Int. Cl. A47b *73/00*; B01l *9/06*

U.S. Cl. 211—74 1 Claim

This invention has for its purpose to provide a test glass holder which consists of parts which may be easily assembled to units of any desired height and which units may be stacked upon each other to form bigger units or blocks. The construction permits easy access to the individual test glasses even when the test glass holders are stacked upon each other. The holders are in their assembled condition rigid and sturdy and



the parts of the same take a minimum of space when they are disassembled.

3,682,324

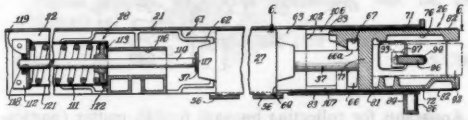
END-OF-CAR IMPACT ABSORBING DEVICE

Vaughn T. Hawthorne, Mechanicsburg, Pa., assignor to Keystone Industries, Inc., Chicago, Ill.

Filed July 6, 1970, Ser. No. 52,265

Int. Cl. B61g *9/12*, *11/12*

U.S. Cl. 213—8 20 Claims



An end-of-car impact absorbing device for a railway car comprises a hydraulic piston and cylinder cushioning unit mounted within the sill of the car at one end thereof with a piston rod projecting from opposite ends of the unit. A coupler yoke is detachably connected to one projecting end of the piston rod, and a return spring assembly is removably mounted in the sill behind the unit for coaction with the opposite projecting end of the piston rod. The return spring assembly includes a helical spring enclosed in a tubular guide and a movable spring follower having connecting means engaging the end of the piston rod. Draft spring means may also be provided.

3,682,325

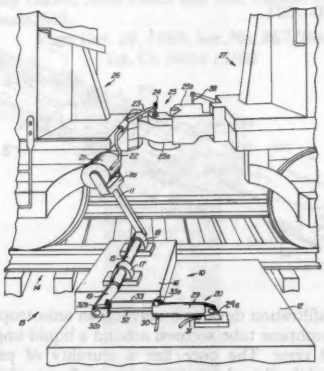
APPARATUS FOR UNCOUPLING RAILROAD CARS

Thomas D. Peterson, and Ralph W. Crosser, Jr., both of Salt Lake City, Utah, assignors to Kennecott Copper Corporation, New York City, N.Y.

Filed July 2, 1970, Ser. No. 52,023

Int. Cl. B61g *7/04*

U.S. Cl. 213—211 10 Claims



An elongate arm is pivotally connected at one end to supporting means adapted to be mounted adjacent a railroad

track. Drive means are provided for pivoting the arm away from the supporting means so as to engage and actuate an uncoupling lever attached to a standard railroad car coupling, thereby opening the coupling. The apparatus can be automated, and can be employed in combination with a train positioner. Appropriate sensing means, such as limit switches and valves, can be used to indicate when the coupling is open and to control the pressure exerted by the pivoting arm on the uncoupling lever. Jogging means can be utilized to jog the cars in order to loosen tight couplings.

3,682,326

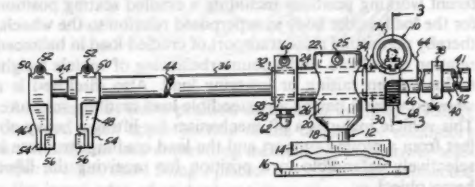
Patent Not Issued For This Number

3,682,327

ROTARY WORK-HANDLING ATTACHMENT FOR WORK TRANSFER DEVICE

John R. Winne, Detroit, Mich., assignor to Erie Engineering Company, Troy, Mich.

Filed April 3, 1970, Ser. No. 25,518
Int. Cl. B66c *1/44*
U.S. Cl. 214—1 BC **1 Claim**



The present invention replaces the workpiece-lifting arm on top of the vertically-reciprocating horizontally-turning lift piston rod of the Lifting and Swinging Work Transfer Device of Kirsch et al. U.S. Pat. No. 3,406,837 of Oct. 22, 1968 by a head adjustably holding a horizontal slide bearing sleeve in which is adjustably slidably mounted an elongated tubular arm. The forward end of this arm carries a stationary work-gripping jaw disposed adjacent a movable work-gripping jaw on a piston rod extending through the arm to the piston head of a jaw-operating fluid pressure cylinder mounted on the rearward end of the arm. Drivingly secured to the arm is an arm-rotating pinion which meshes with a toothed rack interconnecting the spaced two heads of a double-headed piston. The piston is reciprocable in a stationary cylinder mounted on the bearing sleeve. The stroke of the piston at one end of the cylinder is limited by an adjustable stop adjacent an adjustable cylinder head while at the other end the stroke is limited by interchangeable stops adjacent a removable cylinder head for limiting the maximum stroke of the piston and therefore limiting the amount of rotation imparted to the tubular arm and work-gripping jaws carried thereby.

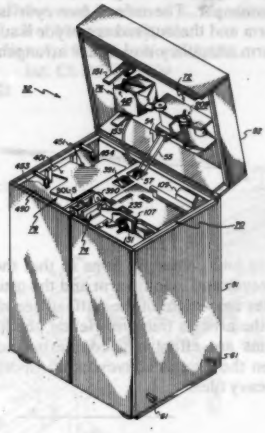
3,682,328

TRAY APPARATUS

Lyman H. Turner, Pittsford, and William P. Kukucka, Henrietta, both of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Sept. 9, 1970, Ser. No. 70,734
Int. Cl. B65g *57/03*
U.S. Cl. 214—6 H **5 Claims**

Tray apparatus for receiving sheet material along a predetermined path and which lowers incrementally in response to a sensing circuit including a motor which lowers a tray member to maintain a constant level of the top sheet received with the sheet path. Two lamp and photodetector pairs serve to sense the level of sheet material received on the tray member and signifies when the tray member is to be



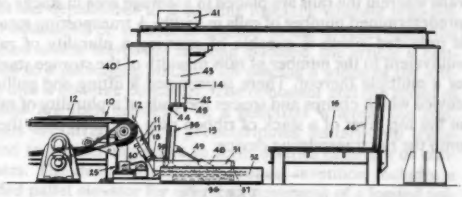
lowered. The motor is reversible to return the tray member to its starting position for unloading the sheet material when full.

3,682,329

SHEET HANDLING APPARATUS

George A. Dean, Kansas City, Mo., assignor to Libbey-Owens-Ford Company, Toledo, Ohio

Filed March 3, 1970, Ser. No. 16,044
Int. Cl. B65g *57/28*
U.S. Cl. 214—7 **9 Claims**



Apparatus for receiving sheets from a horizontal conveyor and stacking them on edge. The sheets fall off the conveyor onto a pivotally mounted platen where they are retained by vacuum for transfer to a vertical position and stacking. Means are provided to automatically index the stack as each sheet is deposited and for transferring a completed stack away from the stacking apparatus.

3,682,330

Patent Not Issued For This Number

3,682,331

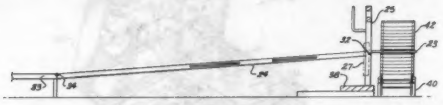
RACK LOADING AND UNLOADING APPARATUS

Robert Theodore Fetherston, 3461 Gila Drive, San Jose, Calif.

Filed Sept. 8, 1970, Ser. No. 70,174
Int. Cl. B65g *1/16*
U.S. Cl. 214—16.4 R **18 Claims**

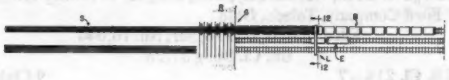
The apparatus provides for loading heavy articles such as mold boards which support roof tiles onto a rack while simul-

taneously unloading mold boards from a different section of a rack. The loading-unloading arrangement includes an infeed conveyor and a first loading arm, and an unloading arm and outfeed conveyor. The infeed conveyor is supported by the loading arm and the outfeed conveyor is supported by the unloading arm. A pulley and chain arrangement interconnects



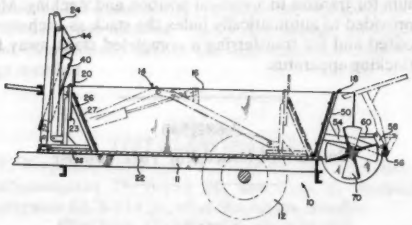
the loading and unloading arms so that the weight of the infeed conveyor and loading arm and the articles thereon counterbalances the weight of the outfeed conveyor and unloading arm and the articles thereon. Hence, the loading and unloading systems are effectively counterbalanced by each other even when the several conveyors transport mold boards supporting heavy tiles.

3,682,332
RAIL HANDLING SYSTEM
Joseph G. Fearon, Libby, Mont., assignor to Morrison-Knudsen Company, Inc., Boise, Idaho
Filed April 1, 1970, Ser. No. 24,583
Int. Cl. B65g *67/12*
U.S. Cl. 214—41 **4 Claims**



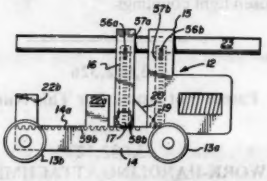
A system for simultaneously handling a plurality of ribbon rails wherein the rails are placed in a storage area in stacks of a predetermined number of rails in width. A transporting means is provided which is capable of carrying a plurality of rails equivalent to the number of rails in width of the storage stacks or a multiple thereof. There is provided a lifting and pulling device which clamps and spaces the ends of a plurality of rails in the top layer of a stack of ribbon rails and then pulls them onto the rail transporting device.

3,682,333
SELF-UNLOADING VEHICLE
Herbert K. Krause, Route 1, Box 185 A, Blaine, Wash.
Filed July 15, 1970, Ser. No. 55,097
Int. Cl. B60p *1/00*
U.S. Cl. 214—82 **2 Claims**



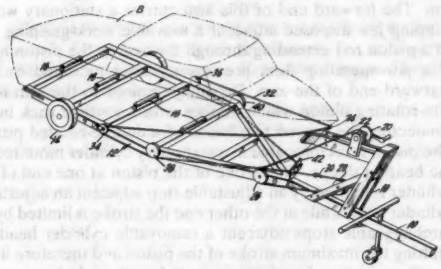
An unloading apparatus for a spreader or the like includes a caliper arm mechanism one end of which is secured to the box and the other end of which is secured to a slidable bulkboard. A hydraulic ram spreads the arms of the caliper mechanism to slide the bulkboard rearwardly. A tailgate is mounted for movement in an upward and rearward arcuate path to serve as a shield while material is being thrown from the spreader.

3,682,334
LOAD LIFTING AND TRANSPORT VEHICLE
Thomas K. Breitfuss, Tustin, Calif., assignor to Hydro Conduit Corporation, Orange, Calif.
Filed Nov. 12, 1969, Ser. No. 875,743
Int. Cl. B60p *1/46*
U.S. Cl. 214—75 G **5 Claims**



Wheeled vehicle with body including forward and rear upright support members in superposed relation to wheels and associated lift mechanism mounted on at least one of said members. One upright member movable forwardly and rearwardly on body to dispose associated lift mechanism in different working positions including a cradled seating position for the load on the body in superposed relation to the wheels, thereby permitting rapid transport of cradled load in balanced relation on vehicle, and a counterbalancing of vehicle weight to load when raising or lowering load. Also disclosed is a wheeled vehicle having an extendible load cradling structure. This vehicle includes a lift mechanism for lifting a heavy object from a ground support and the load cradling structure is selectively extendible to a position for receiving the lifted heavy object.

3,682,335
LAUNCHING DEVICE FOR BOAT TRAILERS
William P. Smyth, 49-06, 21st Avenue, Jackson Heights, N.Y.
Filed June 11, 1970, Ser. No. 45,420
Int. Cl. B60p *3/10*
U.S. Cl. 214—82 **14 Claims**



A device for launching a boat from a boat trailer having running gear, a frame mounted on said running gear for supporting a boat thereon, a tongue extending from the front end of said frame and a winch mounted on said tongue and having a cable windable thereon, said device comprising a pair of guide members in transverse relationship on opposite sides of said frame and positioned above the horizontal plane of said frame, a bridle extending around the bow of a boat on said frame and then rearwardly along the opposite sides of said boat through said guide members and then forwardly toward said winch, and yoke means interposed between said winch and said guide members for connecting said winch cable to said bridle. The yoke means is comprised of a plate having a plurality of slots originating from an enlarged opening, knots in the bridle are passable through said enlarged opening but not through the slots. The device, according to the present in-

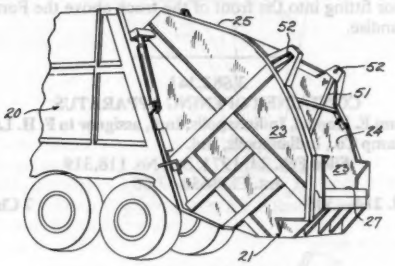
vention, is such that in addition to facilitating the launching of the boats from trailers, it is at all times easily accessible and also adjustable to the particular boat trailer combination.

3,682,336

REFUSE BODY LOADING MECHANISM

John E. Wieschel, Hartland; Jerald G. Zanzig; Robert M. Czarnecki, both of Milwaukee, and Claire W. Murray, West Allis, all of Wis., assignors to The Heil Co., Milwaukee, Wis.

Filed March 17, 1971, Ser. No. 125,059
Int. Cl. B65f 3/00
U.S. Cl. 214—83.3 13 Claims



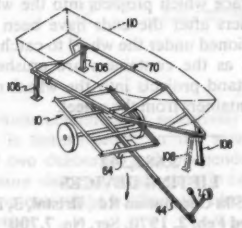
A refuse body has a position controlling member pivotally connected to an upper portion of the tailgate for oscillatory movement,with said controlling member having a lower telescopic section, there being a packer blade pivotally connected to the lower edge of said telescopic section. There is power operated means for causing telescopic movement of said telescopic section and power operated means for causing swinging movement of the packer blade to transfer refuse from the bottom of the tailgate hopper into the refuse body. There is also means on the tailgate pivotally connected to the packer blade for guiding the adjacent parts in a generally quadrangular circuit during cycling of the mechanism and as the blade controlling member oscillates.

3,682,337

MULTIPURPOSE TRAILER

Joe C. May, 127 T Pass Rd., Biloxi, Miss., and James D. Lowery, Jr., 139 Calhoun St., Jackson, Miss.

Division of Ser. No. 839,483, July 7, 1969, Pat. No. 3,578,190.
This application March 31, 1971, Ser. No. 129,689
Int. Cl. B60p 3/10
U.S. Cl. 214—152 11 Claims



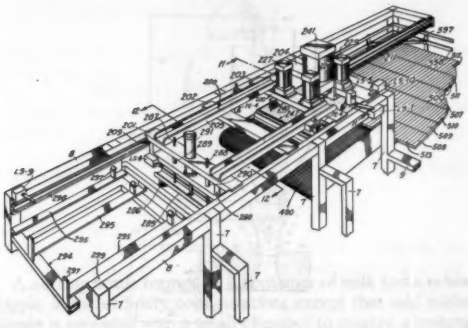
A multipurpose trailer particularly adapted for use as a combination boat and dog/utility trailer in which a separable frame is provided for supporting a boat on a running gear for the transporting thereof, as well as independently of the running gear for the storage thereof. A method for mounting and dismounting the separable frame from the running gear with a boat thereon is also disclosed.

3,682,338

COMBINATION DEPALLETIZER AND PALLETIZER

George E. Von Gal, Jr., 3408 Thomas Ave.; Mabry S. Phillips, 3144 Woodfern Drive, and Lawrence A. Hutchinson, 3431 Cloverdale Road, all of Montgomery, Ala.

Filed Nov. 4, 1969, Ser. No. 873,896
Int. Cl. B65g 59/04
U.S. Cl. 214—8.5 D 7 Claims

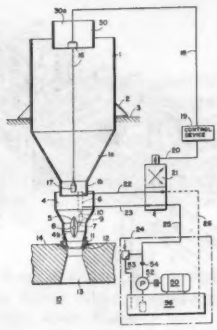


This invention relates to an automatic palletizer system and a conveyor system for use in handling a multiplicity of articles. More particular, this invention includes a depalletizer for effecting the removal of a layer of articles such as cans, from a loaded pallet and transferring said layer of articles to a receiving conveyor. The depalletized articles are then conveyed from the depalletizer to a labeling machine wherein information contained on a label is applied to the article. After the labeled article leaves the labeling machine, the article is conveyed to a packaging machine for placing a series of the articles into a box-like container. The container and the series of articles are then conveyed to a palletizer wherein the containers are arranged in a predetermined pattern and transferred to a receiving pallet to form a series of layers of containers. The depalletizer of the present invention includes a loaded pallet elevator for effecting movement of a loaded pallet to a transfer means whereby a layer of articles are transferred therefrom. A receiving conveyor means is located adjacent said loaded pallet elevator for receiving a layer of articles transferred from the loaded pallet. Located on an opposite side of said elevator from the receiving conveyor is a slip-sheet storage bin for receiving slip-sheets as they are removed from the loaded pallet. The receiving conveyor means includes a series of conveyors for effecting a transfer of a layer of articles successively from movement along a first predetermined path in a transverse array to a second predetermined path whereby the articles are moved individually to the labeling machine. The transfer means for effecting a transfer of a slip-sheet from the loaded pallet to the storage bin includes a series of suction cups. The transfer means for transferring a layer of articles from the loaded pallet to the receiving conveyor includes a magnetic pick up head. A pallet magazine is supported on the system beneath the slip-sheet storage bin and between the loaded pallet elevator and an elevator for the container palletizer, whereby an empty pallet from the depalletizer may be transferred directly to the container palletizer or may be transferred to the pallet magazine for storage. However, should an empty pallet not be available from the depalletizer as required by the container palletizer, the magazine is detail for dispensing a pallet therefrom to the container palletizer.

3,682,339
FREE FALL CHARGING APPARATUS FOR A COKING FURNACE

Johannes Knappstein, Recklinghausen, Germany, assignor to Firma Carl Still, Recklinghausen, Germany

Filed July 21, 1970, Ser. No. 56,920
Claims priority, application Germany, Sept. 18, 1969, P 19 47 200.5
Int. Cl. C10b *31/04*
U.S. Cl. 214—35 R 10 Claims

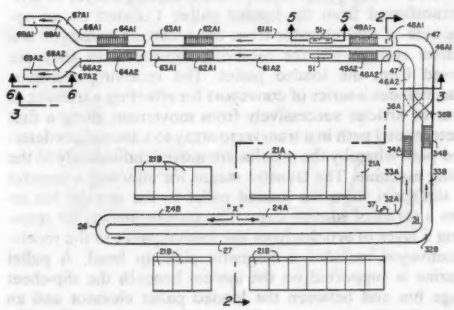


A coking furnace charging hopper includes a lower discharge which is connected to a transfer funnel leading to the furnace head, and a valve member is pivotally mounted in the funnel for movement between an axially extending fully opened position to a transversely extending closed position. The hopper includes a coal inflow gauge or device for measuring the inflow rate of the charging coal which is connected to a control for regulating the valve between its fully opened and fully closed position in order to maintain the volume or weight reduction of the coal in the hopper constant per unit of time.

3,682,340
METHOD FOR FILLING ORDERS OF CUSTOMERS

Owen L. Field, c/o Claser Bros., 4800 S. Boyle Ave., Los Angeles, Calif.

Division of Ser. No. 873,185, Nov. 3, 1969, Pat. No. 3,616,944.
This application Feb. 3, 1971, Ser. No. 112,339
Int. Cl. B65g *1/06*
U.S. Cl. 214—152 5 Claims

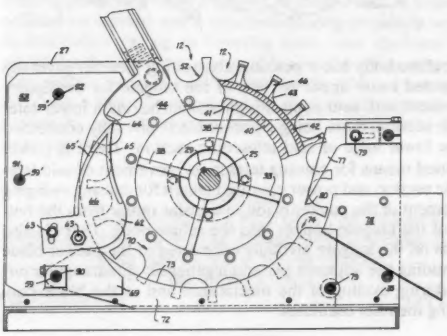


A conveyor system for efficiently filling, checking, loading and delivering a variety of items of merchandise to a large number of customers using a plurality of trucks. Salesmen's orders, each covering a large number of separate items, are written on two different forms (Form A for cigarettes, Form B for cigars, e.g.). The forms are then collated in accordance with pre-established route lists, listing for each truck delivery the customer stops in order. Orders are filled by warehousemen in reverse order of the route lists, Form A orders on conveyor A and Form B orders on conveyor B, the merchandise being moved along to a station, where the orders are packed up and taken to an invoice clerk for billing. Conveyor A has an elevator which places it immediately on top of conveyor B. Each conveyor has a switch making it possible to switch the merchandise to either of two parallel, double-deck storage conveyors of extended length leading to separate loading docks. All merchandise for a particular truck is stored on one of these storage conveyors while being invoiced and is then checked and loaded into the truck in inverse order of delivery, the Form A merchandise on a telescopic loading conveyor fitting into the front of the truck above the Form B merchandise.

3,682,341
CONTAINER OPENING APPARATUS

Hermann E. Happel, Indianapolis, Ind., assignor to F. H. Langsenkamp Co., Indianapolis, Ind.

Filed Feb. 24, 1971, Ser. No. 118,319
Int. Cl. B65d *47/00*
U.S. Cl. 214—305 7 Claims



An apparatus for opening containers and removing the contents from the containers. A wheel is rotatably mounted to a stand having recesses formed on its outer extremity for receiving containers dispensed from a first chute positioned over the wheel. The wheel is rotatably driven forcing the ends of the container past a pair of stationary blades which remove the ends of the container. A wall mounted to the stand has an upper curved surface which projects into the wheel so as to crush the containers after the ends have been removed. A receptacle is positioned under the wheel to catch the contents of the containers as the containers are crushed. A wedge mounted to the stand projects into the wheel removing the crushed empty containers from the wheel.

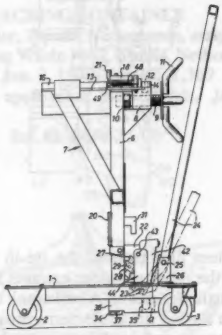
3,682,342
LIFTING DEVICES

David L. Evans, 250a Coronation Rd., Bristol, 3, England

Filed Feb. 2, 1970, Ser. No. 7,700
Claims priority, application Great Britain, Feb. 4, 1969, 6,065/69; April 21, 1969, 20,265/69
Int. Cl. B66f *1/02*
U.S. Cl. 214—653 5 Claims

A lifting and transporting device for gas cylinders and other heavy objects has a wheeled base frame provided with an upwardly extending column on which is slidably mounted a tubular member of an upper frame formed with manually operated jaws for clamping a cylinder in an upright position against the

upper frame. A hand-lever pivotally mounted on the base frame is provided at its lower end with a roller which is adapted to engage a block mounted on the tubular member of the upper frame to lift the latter and the block carries a rotatable catch and catch-operating device of which the latter is



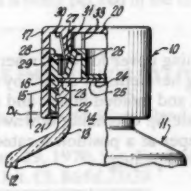
rotated by a stop on the base column during upward movement of the upper frame to move the catch into locking engagement with the column and is further rotated by upward movement of the upper frame beyond its raised position to disengage the catch.

3,682,343

SAFETY CLOSURE DEVICE

William James Landen, Cheshire, Conn., assignor to Eyelet Speciality Company, Wallingford, Conn.

Filed July 22, 1970, Ser. No. 57,114
Int. Cl. B65d *55/02*
U.S. Cl. 215—9 17 Claims



The invention contemplates selectively openable closure means that is tamper-proof, in the sense that a correct sequence of two deliberate and independent movements of lockable closure elements is necessary in order to achieve access to the contents of the bottle or the like which is protected by the closure.

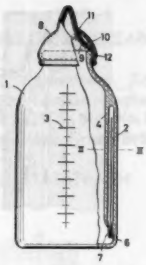
The specific construction that is described involves a bottle member with a threaded neck and a closure-cap member. The latter comprises telescoped relatively rotatable parts, the inner of which threads to the neck, and the outer of which is for manual operation. The parts of the closure-cap member have a limited axial lost-motion connection, and deformable means on one of the tubular members has cammed engagement with a coacting part of the other tubular member during the course of lost-motion displacement. Thus, lost-motion displacement must occur before the bottle can be uncapped.

3,682,344

NURSING BOTTLE FORMED BY A HOUSING AND A RUBBER NIPPLE

Arnelson N. Lopez, Louella, No. 301 Avellaneda, Buenos Aires, Argentina

Filed Aug. 17, 1970, Ser. No. 63,502
Int. Cl. A61j *9/00, 9/02*
U.S. Cl. 215—11 R 7 Claims



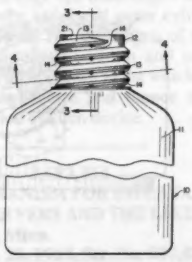
A nursing bottle formed by a container of milk and a rubber nipple in the ordinary configurations except that said rubber nipple is provided with a small chamber to receive a material other than milk and to supply said material for baby together with said milk in the container.

3,682,345

THREADED CONTAINER CLOSURE

William A. Baugh, Overland Park, Kans., assignor to Ethyl Development Corp., Kansas City, Mo.

Filed June 15, 1970, Ser. No. 46,144
Int. Cl. B65d *41/04*
U.S. Cl. 215—43 R 1 Claim



A threaded container closure assembly having at least one element made of a resilient plastic material. Threads are provided on one element which are received in corresponding recesses provided on the other closure element. A plurality of integrally formed projections are provided on one of the elements to provide increased frictional engagement between the closure elements.

3,682,346

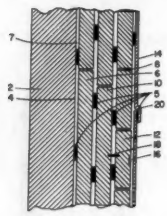
LIQUID CRYOGEN STORAGE TANK FOR SHORE, SHIP OR BARGE

Eugene L. Sterrett, Hacienda Heights, Calif., assignor to Marathon Oil Company, Findlay, Ohio

Filed March 23, 1970, Ser. No. 21, 574
Int. Cl. B65d *25/18*
U.S. Cl. 220—9 A 15 Claims

A container for cryogenic fluids is described wherein a first layer of insulating blocks completely lines the interior of the container and at least a portion of one face of each block is

bonded to the interior of the container by a cryogenic adhesive. The sides of the insulating blocks have a contractable insulating material completely surrounding them. At least a second layer of insulating blocks is bonded to the first layer of blocks; at least about 2 percent of the areas common to the faces of the first and second layers of blocks are bonded. The sides of the second layer of blocks are surrounded by a contractable insulating material. The face areas common to the blocks that are not bonded preferably have a substantially



non-friction material attached thereto. The layers of blocks are arranged so that there are no direct heat paths to the walls of the container. A membrane of Invar completely covers the interior of the container and is sufficiently bonded to the interior layer of blocks to support the Invar. Optionally, another layer of insulating blocks can be bonded to the Invar and then another layer of Invar bonded to this layer of blocks— this is preferred for containers useful in transporting cryogen. Where the container is stationary, the top of the container does not have to have the membrane of Invar.

3,682,347

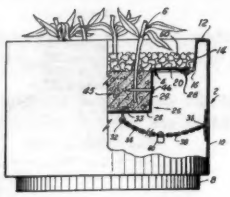
ARTIFICIAL PLANT HOLDER

Alvis L. Barrier, P.O. Box 430, Mineral Wells, Tex.

Filed Dec. 22, 1969, Ser. No. 887,243

Int. Cl. B65d *25/00*

U.S. Cl. 220—16 **4 Claims**



A plant holder comprising an outer receptacle arranged to receive one or more containers for artificial plants. The plants are set in concrete in the containers which are locked to the receptacle to prevent unauthorized removal of the plants. The containers are secured to a platform which is detachably secured to an inwardly extending flange on the receptacle.

3,682,348

HINGE ASSEMBLY

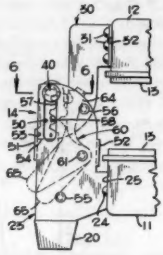
Lloyd A. Roberts, c/o Superior Electric Products Corp., P.O. Box 10, Cape Girardeau, Mo.

Filed March 4, 1970, Ser. No. 16,345

Int. Cl. B65d *43/16*

U.S. Cl. 220—32 **8 Claims**

This hinge assembly includes a base having a lid attached thereto by means of a pair of articulating hinges which permit the lid to be swung about the base and also to be raised relative to the base. Each hinge consists of a slotted hinge element attached to the base and a second hinge element attached to the lid. Associated elements of each pair of hinges are interconnected by a pin which is slidably received within the slot of the slotted hinge elements. One of the hinge elements of each pair includes a pair of shoulders and the other includes a pair of associated abutment lugs. One of the shoulders engages one



of the abutment lugs to hold the lid in a spaced horizontal position and the other shoulder engages the other lug to hold the lid in a vertical position. A bell crank element, pivotally attached to the slotted hinge element, provides a notched latch supporting the pin and predetermining the space between the lid and the base.

3,682,349

EASY-OPENING STOPPER FOR METAL CANS AND THE LIKE

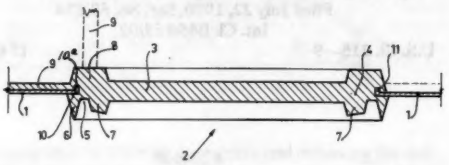
Jean Cospen, 2 rue de L'Yser, 94-Cachan, and Bernard Baumann, 15 avenue de Friedland, 75-Paris 8th, both of France

Filed July 6, 1970, Ser. No. 52,273

Claims priority, application France, July 9, 1969, 6923376

Int. Cl. B65d *39/00*

U.S. Cl. 220—42 B **12 Claims**



An easy-opening cover for cans wherein the cover is made with an opening hermetically sealed by a stopper formed of a plastic material and molded in situ and retained in position of use by a movable lip extending downwardly from the underside of the stopper at a position located beneath the edge of the can about the opening.

3,682,350

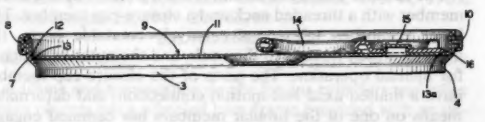
EASY OPENING RECTANGULAR METAL CONTAINER

John C. Baugh, Massillon; John E. Koenig, and James R. McCuskey, both of Canton, all of Ohio, assignors to Van Dorn Company, Cleveland, Ohio

Filed Feb. 18, 1970, Ser. No. 12,349

Int. Cl. B65d *17/24*

U.S. Cl. 220—54 **4 Claims**



An easy opening rectangular metal container or can for food products, particularly meat products such as corned

beef. The can has a rectangular seamless deep drawn cup-like body with integral bottom and side walls, and an easy open top end wall seamed to the body. The can body is generally rectangular in cross section and has parallel side walls with a depth to minimum width ratio of at least approximately one and one-half to one. The container, where used for food products, has the body and top end wall formed of aluminum.

3,682,351

PACKING CONTAINER

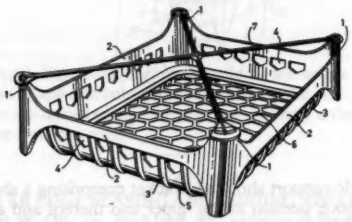
Warner Jan De Putter, Zwolle, Netherlands, assignor to Industriele Onderveming Wavin N.V., Zwolle, Netherlands

Filed Jan. 8, 1970, Ser. No. 1,369

Claims priority, application Netherlands, Jan. 8, 1969, 6900283

Int. Cl. B65d *21/06*

U.S. Cl. 220—97 B **8 Claims**



A packing container of synthetic thermoplastic material is in the form of a rectangular bin having vertical supporting members at each corner interconnected by horizontal bearing members spaced downwardly from the tops of the support members and defining the upper edges of the bin. A bottom wall has its edges merging into the bearing members and is spaced above the lower ends of the corner support members. The entire structure of the corner support members, bearing members and the bottom wall is a single unitary member. A cross tape may be interconnected between the upper ends of the corner support members and may be so dimensioned so as to be under tension. The bottom portion of the bottom wall may be provided with a regular pattern of openings to receive fruit or the like which is being packed in the container.

3,682,352

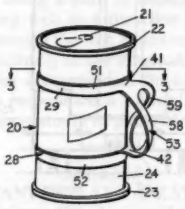
DETACHABLE HANDLE FOR CYLINDRICAL CONTAINERS

Theodore A. Doucette, 113 Old River Road, West Andover, Mass.

Filed Jan. 19, 1970, Ser. No. 3,603

Int. Cl. B65d *25/28*

U.S. Cl. 220—94 **8 Claims**



A flat sheet of low-cost, limp material, such as plastic, is die cut to form a plurality of individual, limp compressible, non-self-supporting handles separable by perforated lines. The sheet forms a carrier for cylindrical containers and the handles are attachable on the containers to convert, for example, beer cans to beer mugs. Each handle includes a pair of flat annular elements each having an inner circular edge, the elements being distorted from a flat plane to form hollow cylindrical loops sleeved on a can, in parallelism with the cylindrical can wall, wholly within the cylinder outlined by the projecting can rims, and separated by an annular element forming a doubled hand grip. The doubled handle is limp and crushable against the can for storage.

3,682,353

APPARATUS FOR DELIVERING TABLETS AND THE LIKE

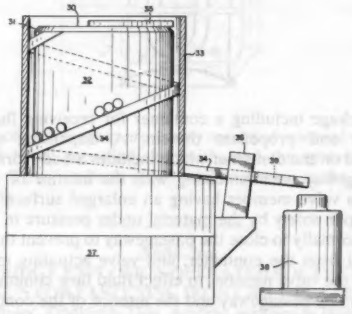
William George Roast, Basingstake, England, assignor to Lilly Industries, Limited, London, England

Filed Oct. 15, 1970, Ser. No. 81,089

Claims priority, application Great Britain, Nov. 3, 1969, 53,874/69

Int. Cl. G07d *9/04*

U.S. Cl. 221—277 **10 Claims**



A tablet counter. Generally disk-shaped tablets on a horizontal circular table are swept to the edge by a rotating arm. A chamfer at such edge tips them edgewise into a vertical opening formed between inner and outer cylindrical walls at the periphery of the table. The opening is of a width to hold the tablets in vertical rolling position and contains one or more helical ramps forming chutes along which the tablets roll to and past a counting device and thence to a receptacle through a gate controlled by such device.

3,682,354

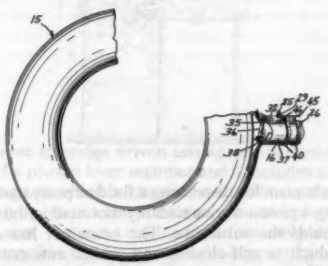
TRIGGER MECHANISM FOR INFLATABLE LIFE PRESERVERS AND THE LIKE

John R. Witte, Homer, Minn.

Filed Feb. 20, 1969, Ser. No. 801,079

Int. Cl. B63c *9/16*

U.S. Cl. 222—3 **8 Claims**



A body having actuating means attached thereto, which actuating means is biased toward a first position and normally

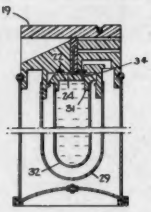
maintained in a second position by a strap which deteriorates upon wetting to allow the actuating means to move into the first position. The trigger mechanism is associated with an inflatable life preserver or the like and a pressurized fluid container having valve means therein which are operated by the actuating means in the first position to allow the pressurized fluid to inflate the life preserver.

3,682,355

PRESSURE ACTUATED VALVE

Mei-kuo Lo, Racine, Wis., assignor to S. C. Johnson & Son, Racine, Wis.

Filed Jan. 6, 1970, Ser. No. 901
Int. Cl. B65d *83/14*
U.S. Cl. 222—94 4 Claims



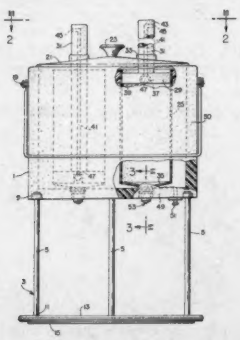
A package including a container for receiving fluid composition and propellant therein. A dispensing assembly mounted on the container which includes a body formed with a passageway communicating with the interior of the container, a valve member having an enlarged surface which is acted upon solely by the material under pressure in the container normally to close the passageway to prevent the flow of material from the container, and valve actuating means for shifting the valve member to effect fluid flow communication between the passageway and the interior of the container for dispensing said composition.

3,682,356

MECHANISM FOR THE METERED DISPENSING OF PASTY SUBSTANCES

Hermann G. Karle, 528 Wellington Ave., Chicago, Ill.

Filed Dec. 31, 1969, Ser. No. 889,617
Claims priority, application Germany, Jan. 8, 1969, P 19 00 720.6
Int. Cl. B67d *5/64*
U.S. Cl. 222—132 1 Claim



A mechanism for dispensing a fluid or pasty mass substance, including a piston device slidably mounted within a container which holds the substance. The container has a dispensing valve which is self-closing and which automatically opens when sufficient pressure is exerted upon the substance. The valve has an elastic conical element having a razor-like incision near the apex of the cone. When sufficient pressure is exerted on the substance, the incision opens to form a narrow slit through which the substance is dispensed.

3,682,357

Patent Not Issued For This Number

3,682,358

ARTICLE-SUPPORT SHOULDER BRACKET

Clifford C. Richey, Scottsdale, Ariz., assignor to Richey's Incorporated, Des Moines, Iowa

Filed July 1, 1970, Ser. No. 51,626
Int. Cl. A45f *3/02*
U.S. Cl. 224—5 R 2 Claims

An article-support shoulder bracket comprising a shoulder engaging hook portion at the upper end thereof and a chest engaging portion at the lower end thereof. A flexible strap is secured at one end to the shoulder bracket adjacent the lower end thereof and has a first fastening element at its other end. A second fastening element is secured to the shoulder bracket above the lower end thereof. The first and second fastening elements may be selectively connected together to form the strap into a loop element capable of supporting an article thereon such as a briefcase, garment bag or the like.

3,682,359

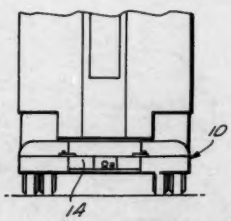
Patent Not Issued For This Number

3,682,360

BUMPER AND SPARE TIRE ASSEMBLY

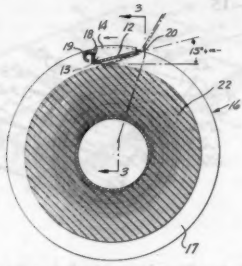
Earl B. Fletcher, 6805 Specht St., and Almon L. Lawson, 6902 Marlow St., both of Bell Gardens, Calif.

Filed Oct. 28, 1970, Ser. No. 84,836
Int. Cl. B60r *9/00, 19/02*; B62d *43/04*
U.S. Cl. 224—42.05 10 Claims



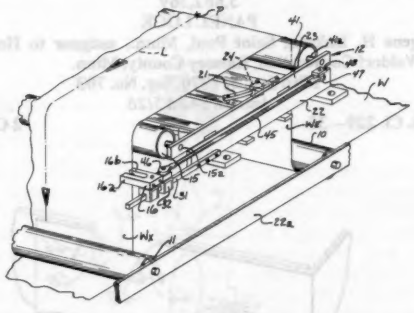
A rear bumper guard assembly for pick up trucks and the like having a removable center portion and a walled tray secured to the bumper guard behind said removable portion and adapted to hold a spare tire and tools.

3,682,361
TAPE REEL WITH CUTTER BLADE
Marvin Evans, R.D. #4, Dallas, Pa.
Filed July 17, 1970, Ser. No. 55,922
Int. Cl. B26f 3/02
U.S. Cl. 225—60 2 Claims



A tape dispensing clip attachable to the edges of a reel of adhesive tape and being rotatable around the reel. The clip includes a transverse cutting edge for severing a desired length of tape from the reel.

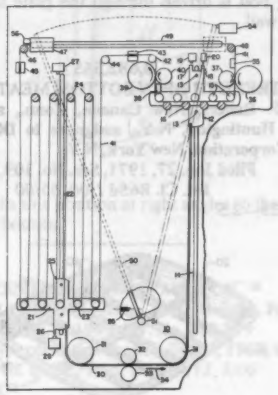
3,682,362
WEB EDGE SENSING AND GUIDING APPARATUS
Robert W. Ott, Jr., Rockford, Ill., assignor to Rockford Servo Corporation, Rockford, Ill.
Filed March 15, 1971, Ser. No. 124,205
Int. Cl. B65h 25/26
U.S. Cl. 226—21 9 Claims



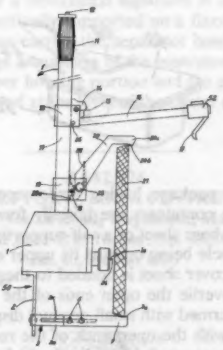
A web edge sensing and guiding system in which a travelling web exits from a tiltable web guide apparatus in a plane transverse to the plane of motion of the web guide apparatus. The lateral position of the web edge is sensed at the exit side of the web guide apparatus and means are provided for moving the web edge sensor along a path to substantially follow movement of the exiting web in a direction perpendicular to its plane while maintaining the web edge sensor at a substantially uniform spacing laterally of the longitudinal path of travel of the web to thereby accommodate fluctuation of the exiting web in a direction perpendicular to its plane caused by tilting of the web guide apparatus in its plane of motion.

3,682,363
INSTANT REPLAY TAPE SYSTEM
Harold L. Hull, Carson City, Nev., assignor to Diamond Engineering & Development Company, Reno, Nev.
Filed Oct. 12, 1970, Ser. No. 79,819
Int. Cl. B65h 17/42; G11b 15/28
U.S. Cl. 226—118 8 Claims

A tape recorder system having separate and independently controllable recording and playback devices with a variable-capacity tape storage between the recording and playback heads and means to position recorded tape accurately at the playback head so as to enable the recorded portion of the tape to be instantly played back upon demand. The system is also capable of re-recording previously recorded material with new material being recorded therewith, and the system is also capable of playing back action in slow motion as the action is occurring.



3,682,364
CARTRIDGE EXPLOSION OPERATED BOLT SETTING GUN FOR FASTENING IRON CHILL PLATES
Elmar Maier, Feldkirch-Tisis, Austria, assignor to Hilti Aktiengesellschaft Schaan, Furstentum, Liechtenstein
Filed Nov. 23, 1970, Ser. No. 91,667
Claims priority, application Germany, Dec. 15, 1969, P 19 62 801.4
Int. Cl. B27f 7/02
U.S. Cl. 227—9 11 Claims



An explosive cartridge driven setting gun is carried at the lower end of a pivotal lever member and it includes a supporting or bearing arm which is adapted to extend over the top of a wall to which a plate is to be affixed to provide a pivoting support for the arm. The arm carries a frame assembly at its lower end with extensible supporting arms for supporting a plate to be positioned on a side of the wall particularly a chill plate for a mold wall. The supporting arms are biased in an outward or extensible position at which they support the plate directly in front of the setting gun. An angle lever carried at the upper end of the frame is biased downwardly to engage the top of the

plate and hold it on the supporting arms. When the plate is to be set on the side of the mold, the handle is pivoted outwardly to cause the lower frame assembly to move inwardly with the plate and to cause the angle lever and the supporting frame members to move inwardly out of complete engagement with the plate. At this time, the setting gun is actuated and an anchoring bolt is driven through the plate to hold it to the mold side wall.

3,682,365

HIGH STRENGTH OPEN BOTTOM MEAT CONTAINER

Richard F. Reifers, New Canaan, Conn., and Kenneth D. Bixler, Huntington, N.Y., assignors to Diamond International Corporation, New York, N.Y.

Filed Jan. 27, 1971, Ser. No. 109,996
Int. Cl. B65d *1/00, 65/00*
U.S. Cl. 229—2.5 **3 Claims**

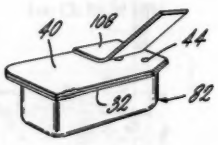
A tray of molded pulp or the like is provided for the packaging of meat, poultry or fish in conjunction with an overwrapped plastic film. The tray is provided with a corrugated series of bowed portions projecting convexly toward the interior of the tray along the edge joining the bottom of the tray to the four side walls, and these bulges merge with a plurality of V-shaped cross sectional ribs extending across the bottom defining a plurality of open windows.

3,682,366

SHAKER DISPENSER

Yun Hoon Chung, Perrysburg, Ohio, assignor to International Automated Machines, Inc., Perrysburg, Ohio

Filed Aug. 14, 1970, Ser. No. 63,821
Int. Cl. B65d *83/06, 47/00*
U.S. Cl. 229—7 R **5 Claims**



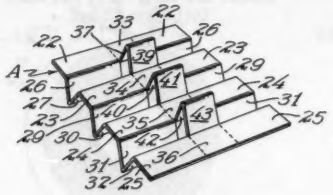
A composite package having three separably connected containers. The containers are initially formed integrally as receptacles in a base sheet of a self-supporting plastic material, each receptacle being open at its upper end and closed at the bottom. A cover sheet is bonded to the upper face of the base sheet to overlie the open ends of the receptacles. The cover sheet is formed with small product dispensing apertures which register with the open ends of the receptacles. In one embodiment the cover sheet is also formed with a vent opening for one of the receptacles. A peelable top sheet is applied over the cover sheet to cover the dispensing openings and complete the containers. The three sheets are severed in a predetermined manner and along predetermined lines between the receptacles to facilitate separation of the containers from one another and to provide tabs which connect the containers to form a composite package. The tabs also facilitate peeling of the top sheet from the cover sheet when it is desired to dispense the product. The receptacles are filled with product through the open upper ends thereof before the cover sheet is applied thereto.

3,682,367

COMBINED PAD AND PARTITION FOR CONTAINERS

John J. Rohde, Salisbury, and Jack B. Robinson, Lexington, both of N.C., assignors to Hoerner Waldorf Corporation, Ramsey County, Minn.

Filed May 26, 1970, Ser. No. 40,615
Int. Cl. B65d *1/36*
U.S. Cl. 229—15 **6 Claims**



A sheet of paperboard is cut and creased to provide a center section and a pair of side sections which are intersected by a plurality of lines of fold dividing the sheet into center panels and side panels. Pairs of center panels are folded up into face contact to form central dividers. Opposed side panels are folded into face contact to provide side dividers extending outwardly from the upwardly folded remaining side panels.

3,682,368

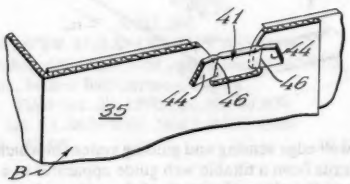
Patent Not Issued For This Number

3,682,369

PANEL LOCK

Eugene H. Isakson, Saint Paul, Minn., assignor to Hoerner Waldorf Corporation, Ramsey County, Minn.

Filed Jan. 5, 1970, Ser. No. 703
Int. Cl. B65d *5/26*
U.S. Cl. 229—35 **2 Claims**



A panel lock is provided for securing two paperboard panels in face contact. A notch is provided in the edge of one of the panels, and a generally T-shaped locking tongue is hinged to the other panel along a fold line substantially coinciding with the base of the notch. The locking tongue is folded through the notch so that the cross-bar of the T-shaped tongue lies against the surface of the notched panel most remote from the panel supporting the tongue.

3,682,370

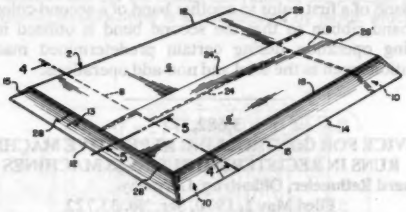
CARTON

Benjamin Rous, New York, N.Y., assignor to Grand-City Container Corp., North Bergen, N.J.

Filed April 23, 1970, Ser. No. 31,239
Int. Cl. B65d *5/02, 5/08*
U.S. Cl. 229—40 **3 Claims**

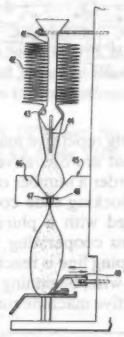
A carton for packaging an article is formed from a single piece blank of paperboard and includes a bottom wall, two

end flaps each having two side flaps, two center side flaps, two end walls and two side walls. The normally oblique side and end walls and the end side flaps initially position the article to



be packaged centrally of the bottom wall and combine with the bottom wall to form an air cell about the four sides of the article to protect it during shipment.

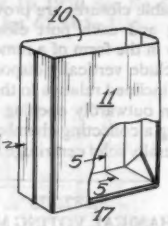
3,682,371
PACKING TUBE
Keiji Saika, No. 7, Chayamocho, Wakayama City, Japan
Filed April 4, 1969, Ser. No. 813,581
Claims priority, application Japan, April 4, 1968, 43/22341; April 13, 1968, 4324916; April 16, 1968, 43/25459; April 8, 1969, 43/28057; April 9, 1968, Japan, 43/23849
Int. Cl. B65d *31/00*
U.S. Cl. 229—53 **7 Claims**



In a packing device using heat-plastic materials such as polyethylene and others, a packing tube prepared by being neatly folded and inserted over the end of a guide cylinder; the packing tube of polyethylene or the like is drawn out successively by as much as needed by supporting the outside of the materials.

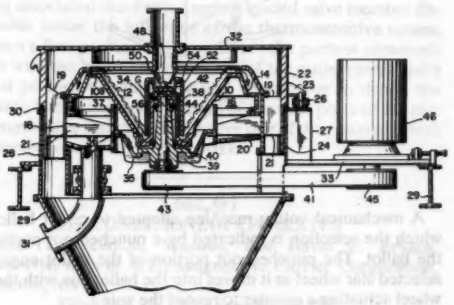
3,682,372
REINFORCED BOTTOM BAG
Frederick T. Rodley, Walden, N.Y., assignor to Hoerner Waldorf Corporation, Ramsey County, Minn.
Filed Aug. 14, 1970, Ser. No. 63,706
Int. Cl. B65d *33/02*
U.S. Cl. 229—55 **4 Claims**

A bag, usually made of plastic sheet material is provided with a substantially rectangular panel hinged to the inner surface of the bag and foldable from flat parallel relation to the



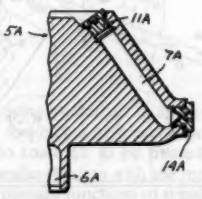
opposed bag walls to a position at right angles to the walls and forming the bag bottom.

3,682,373
CENTRIFUGAL SEPARATOR
Andre Mercier, 14 Rue Gay Lussac, La Madelaine, France
Filed Dec. 8, 1969, Ser. No. 882,879
Claims priority, application France, Dec. 9, 1968, 68177148
Int. Cl. B01d *21/26;* **B04b** *9/12, 3/00*
U.S. Cl. 233—1 C **9 Claims**



The housing of a centrifugal separator is comprised of an upper portion elastically supported on a fixed lower portion. The upper portion carries the separator bowl as well as the feed and discharge assemblies of the separator, and the entire weight of the upper housing portion and the parts it carries is elastically supported at the level of the center of gravity of this weight.

3,682,374
OUTLET PORTS FOR A CENTRIFUGE
John E. Joyce, 22 Nelson Road, Weymouth, Mass.
Filed June 4, 1970, Ser. No. 43,507
Int. Cl. B04b *11/00*
U.S. Cl. 233—47 R **8 Claims**



Generally solid centrifuge rotors are disclosed having a series of equally spaced, outwardly inclined chambers providing

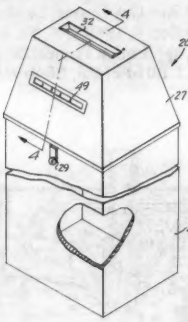
vertically spaced upper and lower ends. Each chamber has a port opening outwardly through the side of the rotor at the chamber end that is spaced the maximum distance from the rotor axis. Detachable closures are provided for each port of the bore opening and each port closure has a collecting chamber desirably in the form of a removable container. The chambers may include vertically disposed end portions that are both inwardly inclined relative to their junction with each junction having an outwardly opening port provided with a port closure having a collecting chamber. The present invention relates to generally solid centrifuge rotors.

3,682,375

MECHANICAL VOTING MACHINE

Roohollah Partovi-Najafabadi, Y-I-G Hensel Apts., College Station, Tex.

Filed March 30, 1971, Ser. No. 129,466
Int. Cl. G07c *13/00*
U.S. Cl. 235—50 A **6 Claims**



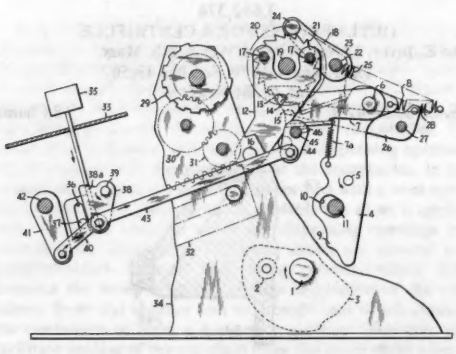
A mechanical voting machine adapted to count ballots in which the selection is indicated by a punched out portion of the ballot. The punched out portion of the ballot engages a selected star wheel as it moves into the ballot box with the star wheel actuating a counter to record the vote.

3,682,376

PRINTING MECHANISM FOR CALCULATING MACHINE

Toshiki Kawamura, Narashino-shi, and Tohru Ohneda, Funabashi-shi, both of Japan, assignors to Kabushiki Kaisha Hattori Tokeiten

Filed Dec. 30, 1968, Ser. No. 787,927
Int. Cl. G06c *29/00*
U.S. Cl. 235—58 P **15 Claims**



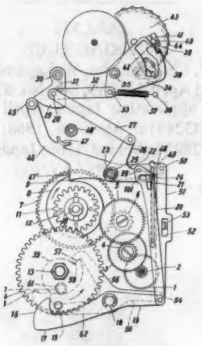
A calculating machine having a mechanism for placing the accumulator rack in a neutral position during non-add and correction operations, a correction key and print prevention mechanism operated by the correction key to prevent the printing of erroneous values that have been registered by the depression of digit keys by the operator, a ratcheting mechanism for winding the ribbon onto a first spool from a second spool including mechanism for reversing the winding and a reciprocal drive bar and a mechanism for shifting from one band of a first color to another band of a second color of a two-band ribbon so that the second band is utilized in the printing operation during certain predetermined machine operations such as the total and non-add operations.

3,682,377

DEVICE FOR CONTROLLING REPETITIVE MACHINE RUNS IN REGISTERING BUSINESS MACHINES

Gerhard Rethmeier, Oldentrup, Germany

Filed May 1, 1970, Ser. No. 33,722
Claims priority, application Germany, May 3, 1969, P 19 22 713.5
Int. Cl. G06c *29/00*
U.S. Cl. 235—60.46 **6 Claims**



Device for controlling repetitive machine runs of registering business machines, that are operative by control keys which release in ascending order a number of machine runs to be executed, including a blocking slide coordinated with the control keys and provided with a plurality of stops, and line-counting circuit means cooperating with the blocking slide, after a given bookkeeping line is reached, to block the successive control keys step-wise, beginning with the highest key, for each successive repetitive machine run.

3,682,378

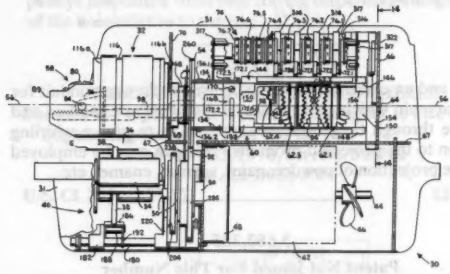
VALUE DISPENSING MECHANISMS

Francis J. Rouan, Darien, and Walter J. Hanson, Old Greenwich, both of Conn., assignors to Pitney-Bowes, Inc., Stamford, Conn.

Filed Nov. 23, 1970, Ser. No. 91,680
Int. Cl. G07g *1/00*
U.S. Cl. 235—101 **6 Claims**

A postage meter having a mechanism which is rotatable to print a postage impression of a selected value. A mechanism for setting the postage value is provided, and is assembled with the printing mechanism for rotation therewith. This setting mechanism includes selector wheels which are coaxially rotatable, and setting bars which are longitudinally translatable in response to rotation of the selector wheels. Economic accountability is assured by postage registers having four drivable decimal orders, and input pinions for each such order. The setting mechanism has four adjustable register-driving gear clusters which are normally disengaged from the register pinions, but engage them during printing. Mechanisms

are provided for choking the register, and for clamping the choke devices to provide positive register locking when the driving gear clusters are disengaged from the pinions. The setting bars comprise an assembly of individual bar members, pairs of which are connected together for joint translation. The bars are nested in a unique way, and are formed with respective gear tooth racks which adjust the register-driving gear clusters and set the numerical value of the postage printing wheels. Rectification is accomplished by pawls which engage the setting bar racks, and have a mutually interlocking relationship with a shutter disk. This interlock operates either to disable the meter trip mechanism, and thus prevent postage printing operation, when the setting bars are not in rectified position; or to lock the setting bars during a postage printing cycle. A deadlock latch, which acts as an intermediate link between the shutter disk and trip mechanism, also blocks the trip mechanism when the descending postage balance is low, or the register compartment access door is open.

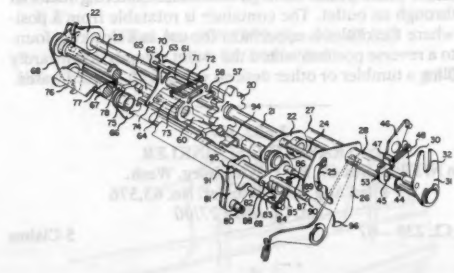


3,682,379

TENS TRANSFER MECHANISM

Hans-Juergen Krause, and Johannes Rindsfuesser, both of Berlin, Germany, assignors to The National Cash Register Company, Dayton, Ohio

Filed Nov. 9, 1970, Ser. No. 87,737
Int. Cl. G06c 7/10
U.S. Cl. 235—137 A **7 Claims**



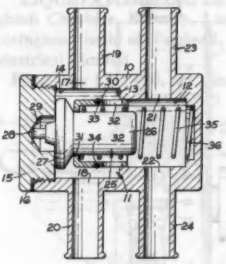
A tens transfer mechanism for use in a totalizer mechanism in which the primary and secondary transfer operations occur simultaneously and the restoring of the transfer segments occurs at the beginning of the succeeding machine operation, thus allowing a total operation to occur during a single machine operation. A bail member is included to operate a plurality of transfer segments, whereby the transfer segments are restored to the home position and are released for operation during the same operation of the bail member.

3,682,380

TEMPERATURE CONTROL IN FLUID SYSTEMS

Ahmad Aziz, 30 Corfton Rd., Ealing, London, W.5, England

Filed Sept. 10, 1970, Ser. No. 63,898
Int. Cl. F01p 7/16
U.S. Cl. 236—34.5 **7 Claims**



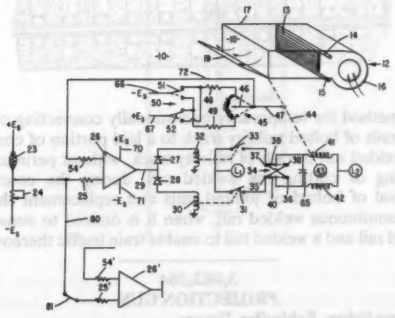
The invention provides a valve comprising a body having a central bore embodying a reduced-diameter seating, a pair of inlet ports and a pair of outlet ports connecting to the central bore for admission of fluid to and from the bore, thermosensitive means disposed in the bore in the path of fluid flow and having associated therewith a spring-loaded valve member displaceable under the influence of the thermosensitive means, between a first position (with a pair of inlet ports in communication with the bore and at least one of the outlet ports) and a second position (cooperating with the seating to divide the bore into two chambers with each of the inlet ports of the pair communicating through a respective one of the chambers with a respective one of the outlet ports).

3,682,381

AIR CONDITIONING APPARATUS

Raymond L. Eckman, Manlius, and David F. Bryans, Cazenovia, both of N.Y., assignors to Carrier Corporation, Syracuse, N.Y.

Filed July 27, 1970, Ser. No. 58,373
Int. Cl. F24f 11/04
U.S. Cl. 236—38 **1 Claim**



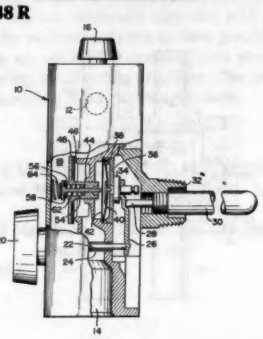
Apparatus for supplying treated air to an enclosure, including a heat exchanger to which a heat exchange medium flows and a fan arranged to route air to be treated over the heat exchanger in heat transfer relation with the medium. A structure serving as an air passage functions to supply treated air to one or more outlets. The discharge area of the outlets is modulated in response to changes in room temperature, while the speed of the fan remains substantially constant.

3,682,382

THERMOSTATICALLY OPERATED VALVE ASSEMBLY

Jay R. Katchka, Long Beach, Calif., assignor to Robertshaw Controls Company, Richmond, Va.

Filed Jan. 2, 1970, Ser. No. 243
Int. Cl. G05d 23/10
U.S. Cl. 236—48 R 6 Claims



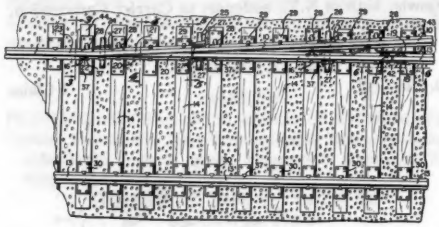
A thermostatically operated valve assembly including a pair of valves in a cascade arrangement with one of the valves being a relatively small flow valve movable between closed and opened positions with a snap action in accordance with minor temperature variations and with a relatively larger valve being provided with a gradual opening movement in accordance with major temperature variations.

3,682,383

METHOD FOR TEMPORARILY CONNECTING RAILS

Henry V. Borst, Box 266, Waymart, Pa.

Division of Ser. No. 716,799, March 28, 1968, Pat. No. 3,593,918. This application Aug. 7, 1970, Ser. No. 62,077
Int. Cl. E01b 27/00, 29/44
U.S. Cl. 238—171 2 Claims



A method for temporarily operationally connecting one or both rails of bolted railway track to a laid portion of continuous welded rail or rails of railway track, without permanently bending or cutting the welded rail, during the course of removal of bolted or jointed rails and replacement thereof with continuous welded rail, when it is desired to connect a bolted rail and a welded rail to enable train traffic thereover.

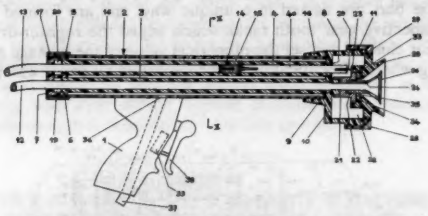
3,682,384

PROJECTION GUN

Georges Suisse, Echirolles, France

Filed April 22, 1970, Ser. No. 30,794
Claims priority, application France, April 22, 1969, 6911165
Int. Cl. B05b 5/00
U.S. Cl. 239—15 5 Claims

An improved projection gun for products in the form of particles, said gun being of light construction and permitting projections of product at relatively-high flow-rates. The gun comprises a plurality of tubes fixed between a rear end-plate and a projection nozzle, said tubes serving to receive an intake tube for the projected product and a high-tension cable for electrically charging the product, the interstitial space between the



tubes and an external sleeve being used to form a conduit for auxiliary air which passes into a distribution chamber and thence through tangential passages, so as to give a whirling motion to the projected products. This gun may be employed for the projection of powder, paint, varnish, enamel, etc...

3,682,385

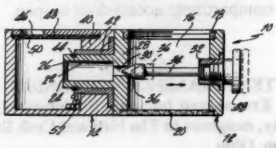
Patent Not Issued For This Number

3,682,386

FILTER FOUNTAIN

Lawrence Herman, 108 West End Avenue, New York, N.Y., and Marvin Rechter, 3 Harbor View West, Lawrence, N.Y.

Filed July 24, 1970, Ser. No. 57,943
Int. Cl. B01d 35/02
U.S. Cl. 239—25 2 Claims



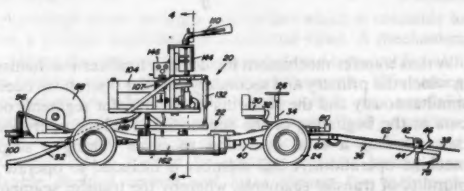
A fountain for supplying filtered water from a water tap comprising a main body and a filter container rotatably secured to the main body. The main body is provided with a screen for building up back pressure so as to direct water through a valve controlled bore into the filter container after which the water passes through charcoaled filtering material and through an outlet. The container is rotatable from a position where the outlet is uppermost for use as a drinking fountain to a reverse position where the outlet extends downwardly for filling a tumbler or other desired vessel with filtered water.

3,682,387

TRAVELING SPRINKLER

Alton N. Filan, Box 69, Rt. 1, Waitsburg, Wash.

Filed Aug. 13, 1970, Ser. No. 63,576
Int. Cl. A01g 27/00
U.S. Cl. 239—67 5 Claims



A mobile chassis having an automatic self-leveling platform thereon which mounts a rotating sprinkler head. A pendulum

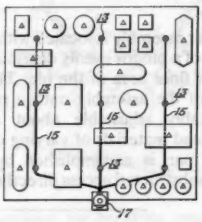
level, mounted on the platform, senses variations in the ground contour and controls the flow of fluid to a plurality of double-acting hydraulic cylinders for a selective extension and retraction of the associated pistons so as to maintain the platform level and locked in its adjusted position until such time as variations in the contour require a readjustment. The device is guided along a cable which defines the path to be taken by the chassis and which incorporates means for automatically terminating movement of the chassis. A water supplying hose is dragged along with the chassis or is selectively stored on a chassis-mounted reel which has hose guiding rollers and guide pulleys associated therewith for the dispensing and gathering of the hose relative to the reel.

3,682,388

FIRE EXTINGUISHER SPINNER NOZZLE

Herman V. Ferguson, Ft. Worth, Tex., assignor to Fire Control Engineering Company, Fort Worth, Tex.

Filed Nov. 23, 1970, Ser. No. 91,912
Int. Cl. B05b *3/04*
U.S. Cl. 239—222.17 **12 Claims**



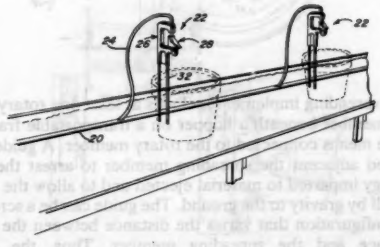
Fire extinguishing apparatus characterized by a spinner nozzle having a base, including a base cover, for connection with a conduit supplying a fire extinguishing agent, a spinner disc and spinner disc skirt rotatably carried by the base cover, and the bearing structure that holds the disc skirt spaced longitudinally of the spinner nozzle and rotatably connected with the base cover. Also disclosed are specific spinner disc skirt structures, specific bearing structures and preferred layouts of fire extinguishing distribution systems.

3,682,389

SPINNER SPRAY SYSTEM

Richard D. Chapin, 368 North Colorado Avenue, Watertown, N.Y.

Filed June 19, 1970, Ser. No. 47,833
Int. Cl. B05b *3/04*
U.S. Cl. 239—222.21 **13 Claims**



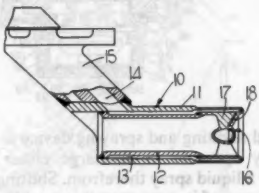
A water distributing system incorporating spinner-type spray units. Each spray unit consists of one or more support rods, a head, a water distributing spinner rotatably mounted on a laterally projecting portion of the head, and the discharge end of a water supply tube retained by the head and so directed as to discharge water on the spinner for a spray distribution thereof to the surrounding area. The head is a molded one-piece member and mounts the spinner, the discharge end of the supply tube, and the support rod or rods.

3,682,390

LIQUID ATOMIZING DEVICES

Alan Gillingham Cheshire, Burnley, Lancashire, and Harold Place, Accrington, both of England, assignors to Joseph Lucas (Industries) Limited

Filed May 13, 1970, Ser. No. 36,802
Int. Cl. B05b *7/10*
U.S. Cl. 239—399 **2 Claims**



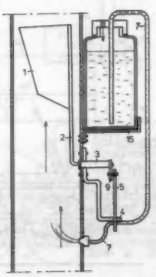
A liquid atomizing device in which a tubular body is open at both ends and has inclined blades mounted within one end to impart a swirling motion to air passing through the body. Fuel is supplied through passages which open on to the downstream edges of the blades, with the fuel being injected transversely into the swirling airstream.

3,682,391

FEEDING DEVICE FOR FODDER PRESERVING LIQUID

Niilo Kause, Paatinen, Finland

Filed Oct. 14, 1970, Ser. No. 80,657
Int. Cl. B05b *1/14, 7/12*
U.S. Cl. 239—410 **2 Claims**



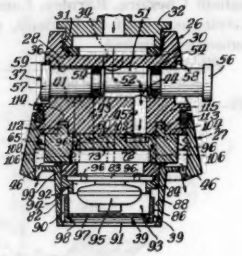
A device is used in the harvesting of green fodder for feeding a fodder preserving liquid. The device includes a vane-like sensing element located inside the cutting machine and turning in the approximate direction of the fodder flow depending upon the quantity of fodder which has been cut. The fodder preserving liquid flows into the machine from a container through a valve and a nozzle unit. The sensing element regulates the valve and thus regulates the quantity of preserving liquid supplied to the fodder.

3,682,392

LIQUID AERATING AND SPRAYING DEVICE

Louis F. Kint, Chicago, Ill., assignor to Wrightway Mfg. Co., Chicago, Ill.

Filed Nov. 25, 1970, Ser. No. 92,650
Int. Cl. E03c 1/08
U.S. Cl. 239—428.5 13 Claims



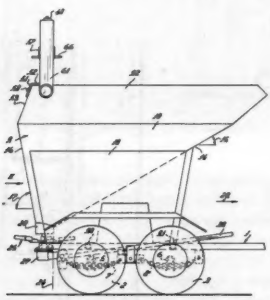
A liquid aerating and spraying device is disclosed, which is selectively operable to discharge either an aerated liquid stream or a liquid spray therefrom. Shifting of a plunger in the device to one of its two operating positions causes liquid entering the device to be diverted into one set of passages therein so that the device functions as a normal aerator. Shifting of the plunger to the other of its two operating positions causes the liquid to be diverted into another set of passages so that the device functions as a liquid sprayer.

3,682,393

SPREADING IMPLEMENTS AND/OR TRANSPORT VEHICLES

Ian Archie Mackinnon, Burlington, Ontario, Canada, assignor to Lely Ltd., Burlington, Canada

Filed May 25, 1970, Ser. No. 40,116
Claims priority, application Netherlands, May 30, 1969, 6908237
Int. Cl. A01c 3/07, 7/08, 15/00
U.S. Cl. 239—651 23 Claims



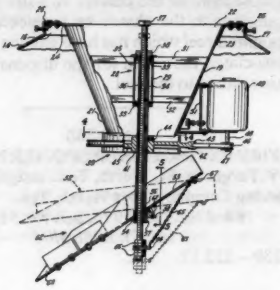
An implement for transporting and/or spreading material includes a container with inclined sides and an outlet at the bottom. A rotary spreader is positioned below the outlet and a conveying screw is mounted in the container to extend upwardly from near the bottom to above the container rim. The screw is connectable to the spreader, and both are operated by the same drive shaft. The screw is mounted in a tube and secured in the container against displacement with a further delivery unit coupled to the top of the tube extending approximately horizontally to deliver material from the bottom of the container up and laterally away from the implement. The screw and tube can be readily detached from the drive shaft and the container and an agitator substituted.

3,682,394

MATERIAL SPREADER ASSEMBLY

Charles C. Shivvers, 614 West English, Corydon, Iowa

Filed Feb. 3, 1971, Ser. No. 112,375
Int. Cl. B65g 65/32
U.S. Cl. 239—665 5 Claims



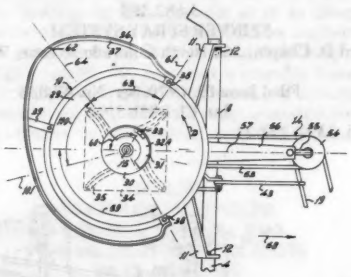
The spreader assembly is located within a top fill opening or material inlet of a bin for evenly distributing a material such as grain over the floor area of the bin. The material is directed downwardly of the assembly onto a rotatable spreader pan which is tiltably adjustable about a horizontal axis to uniformly spread materials of varying density. Adjustment of the spreader pan is accomplished by means conveniently located for unobstructed access directly at the top fill opening.

3,682,395

SPREADING IMPLEMENTS WITH MEANS FOR VARYING AND DIRECTING THE FLOW OF MATERIALS

Ary van der Lely, 10, Weverskade, Maasland, and Cornelis Johannes Gerardus Bom, 36 Esdoornlaam, Rosenburg, both of Netherlands

Filed March 5, 1970, Ser. No. 16,732
Claims priority, application Netherlands, March 11, 1969, 6903709
Int. Cl. A01c 17/00
U.S. Cl. 239—666 36 Claims



A spreading implement includes at least one rotary spreading member beneath a hopper on a transportable frame with drive means connected to the rotary member. A guide is positioned adjacent the spreading member to arrest the kinetic energy imparted to material ejected and to allow the material to fall by gravity to the ground. The guide can be a screen with a configuration that varies the distance between the screen's surface and the spreading member. Thus, the distance between a segment of the screen and the spreading member can progressively decrease about the axis of rotation in the direction of rotation. The outlet in the bottom of the hopper can be positioned to feed material to the spreading member so that regulated amounts strike the screen. Such a screen can

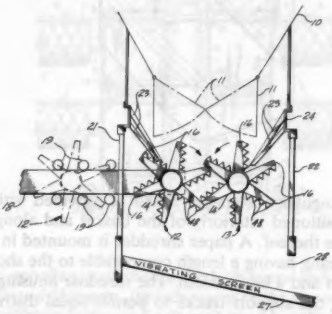
have foldable sections that are positionally adjustable to permit spreading spectrum changes. One or more spreading members with outlet regulators can be pivoted on beams relative to a frame mount so that insecticides, herbicides and the like can be directed in carefully controlled amounts along rows of trees or other crops.

3,682,396

REFUSE DISINTEGRATOR

Douglas S. Whitney, 2616 E. Norm Place, Anaheim, Calif., and George W. Morgan, 1400 Douglass, Space 112, Anaheim, Calif.

Filed Feb. 22, 1971, Ser. No. 117,492
Int. Cl. B02c *13/06, 13/28, 12/288*
U.S. Cl. 241—41 **16 Claims**



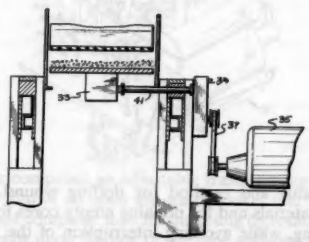
A mechanism is provided for breaking open bundles and fluffing or shredding domestic refuse or the like. A feed hopper flows refuse into the throat between a pair of contra-rotating reels having spiders spaced along their length for contacting the refuse. One of the reels moves at a greater rate than the other, and teeth on the legs of the spiders engage the refuse for tearing open bundles or otherwise disintegrating the refuse. One of the reels is retractable and both are reversible for unjamming the mechanism. Each of the legs of each of the spiders has a replaceable slipcover having teeth along at least one edge thereof. Air jets along the length of the legs serve to clear refuse from the teeth, fluff the refuse, and permit drying, moisturizing deodorizing, or sanitizing of the refuse while it is being disintegrated.

3,682,397

APPARATUS FOR CRUSHING AND SEPARATING ORE MATERIAL

Albert G. Bodine, 7877 Woodley Avenue, Van Nuys, Calif.

Filed Feb. 27, 1969, Ser. No. 802,907
Int. Cl. B02c *19/16*
U.S. Cl. 241—46 R **3 Claims**



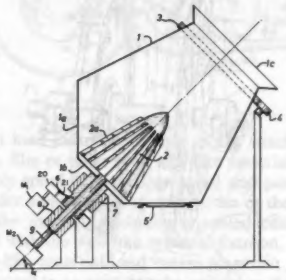
Earth is crushed and ore can be separated therefrom by passing the earthen material over a sonically activated surface. The earth is kept acoustically coupled to the surface through the use of a low impedance medium which can be rubber, liquid mercury, and the like.

3,682,398

APPARATUS FOR PREPARING PAPER PULP OR ANY OTHER PRODUCT OF A SIMILAR NATURE, FROM BALES OF CELLULOSE OR RAW MATERIALS FOR RECOVERY, SUCH AS WASTE PAPER

Pierre Louis Lamort, 47, rue de Bac 51,, Vitry-Le-Francois, France

Filed Sept. 9, 1969, Ser. No. 856,343
Claims priority, application France, Aug. 25, 1969, 6928999
Int. Cl. B02c *19/12;* **D21b** *1/12*
U.S. Cl. 241—46.17 **11 Claims**



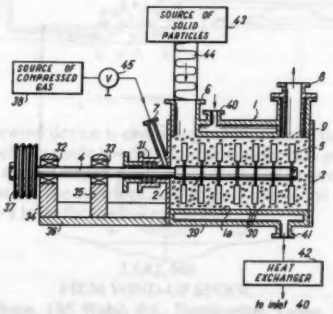
This invention provides a shredder for cellulose material in which a tank is rotatable about an inclined axis at a first speed and a shredder rotor in the tank is rotatable at a second speed greater than the first.

3,682,399

APPARATUS FOR COMMINUTING AND DISPERSING SOLID PARTICLES

Jan Kaspar, Pardubice, and Vladislav Bicik, both of Pardubice, Czechoslovakia, assignors to Vyzkumny Ustav Organickych Syntez, Pardubice, Czechoslovakia

Filed March 25, 1969, Ser. No. 810,183
Int. Cl. B02c *17/16*
U.S. Cl. 241—50 **9 Claims**



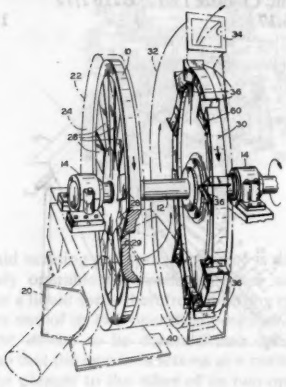
Apparatus for comminuting dry solid particles to a size of one micron or less comprises a vessel which contains a supply of balls agitated by one or more disks mounted on a shaft which is coaxial with and extends into the vessel. The comminuted material is evacuated by gravity or by conveying a gas through the interior of the vessel. The diameters of balls do not exceed 5 millimeters and the diameters of agitating disks are between 70 and 90 percent of internal diameter of the vessel.

3,682,400

PULPWOOD CHIPPER

William C. Smith, West Vancouver, British Columbia, Canada, assignor to Rader Pneumatics & Engineering Co. Ltd., Burnaby, British Columbia, Canada

Filed Feb. 3, 1971, Ser. No. 112,310
Int. Cl. B02c *18/06*
U.S. Cl. 241—56 6 Claims



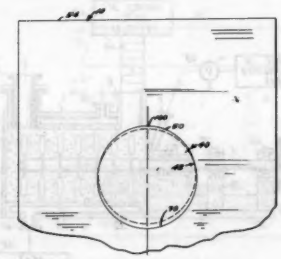
Wood chipper has rotating chipper disc and fan wheel spaced from disc against which fan wheel chips impinge. Fan wheel provided with impact plates in area of impact of chips to provide low angle of impact to impinging chips to minimize chip damage.

3,682,401

HAMMERMILL HAMMER AND ASSEMBLY

Calvin L. Jacobson, 1421 Onyx Drive, Harlan, Iowa; Robert E. Morken, 3818 Douglas Drive, Crystal, Minn., and Norman C. Silver, 8212 So. Virginia Circle, St. Louis Park, Minn.

Filed Sept. 17, 1969, Ser. No. 858,683
Int. Cl. B02c *13/28*
U.S. Cl. 241—195 5 Claims



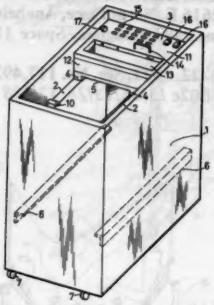
An elongated hammermill hammer having an opening therethrough provided with a bearing wall portion disposed closest to one end of the hammer and of the shape of a portion of the curved surface of a cylinder for receiving a cylindrical hammermill attachment rod snugly thereagainst to provide a greater bearing surface to extend hammer life, the opening further having an access wall portion disposed closer to the other end of the hammer than the bearing wall portion, the access wall portion defining a part of the opening which is of larger area than that defined by the bearing wall portion for a more free reception of the access wall portion on the rod.

3,682,402

WASTEPAPER BASKET WITH PAPER SHREDDER

Albert Goldhammer, Postfach 128, 7773 Nussdorf/Bodensee, Germany

Filed Oct. 6, 1969, Ser. No. 863,911
Claims priority, application Germany, Oct. 17, 1968, P 18 03 463.4
Int. Cl. B02c *19/12*
U.S. Cl. 241—100 17 Claims



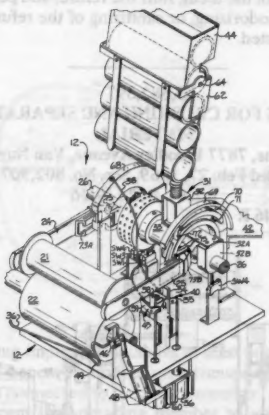
A rectangular wastepaper basket is provided with support tracks positioned interiorly of the basket and along longitudinal sides thereof. A paper shredder is mounted in a rectangular housing having a length comparable to the short side of the basket and a lesser width. The shredder housing is movable along the support tracks to permit equal distribution of shredded paper over the full floor area of the basket.

3,682,403

APPARATUS AND METHOD FOR DOFFING WOUND PACKAGES AND DONNING EMPTY CORES

David M. Willis, Spartanburg, S.C., assignor to Jonathan Logan Inc., New York, N.Y.

Filed May 1, 1970, Ser. No. 33,706
Int. Cl. B65h *54/02*
U.S. Cl. 242—18 A 33 Claims



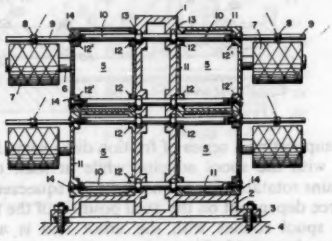
Apparatus and method for doffing wound packages of strand materials and for donning empty cores for resumption of winding, while avoiding interruption of the movement of strand material to be wound, if desired. As applied to a textile yarn texturing machine, a core supporting arm is displaced from a winding position to a doffing position and a wound package is doffed from the arm. Yarn being textured is severed, to separate a doffed package therefrom, and an empty core is donned on the arm as the same returns to a

winding position. During doffing and donning, a running end of the yarn being textured is taken up and is subsequently severed to form a free end to be wound about the donned empty core.

3,682,404
MULTI-SPOOLING MACHINE WITH INTERCHANGEABLE UNITS

Hans Jochen Busch, Remscheid-Lennep, Germany, assignor to Barmag Barmer Maschinenfabrik Aktiengesellschaft, Wuppertal, Germany

Filed May 15, 1970, Ser. No. 37,823
Int. Cl. B65h *54/02, 54/72*
U.S. Cl. 242—35.5 R 10 Claims

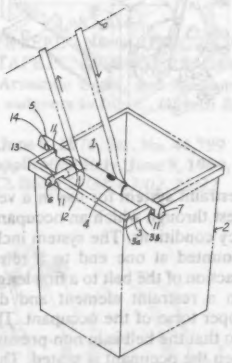


A multi-spooling machine for the high-speed and low-vibration winding of filaments, threads, yarns or the like wherein individual self-supporting and self-contained spooling units are interchangeably mounted and detachably fastened in adjacent abutting positions onto a base-anchored supporting stand to provide a unitary vibration-damping mass.

3,682,405
HOLDER FOR FEEDING PUNCHED TAPE

Marion F. Adamczyk, 4638 Pinecrest Drive, Uniontown, Ohio

Filed Oct. 26, 1970, Ser. No. 83,696
Int. Cl. B65h *75/02*
U.S. Cl. 242—55 8 Claims



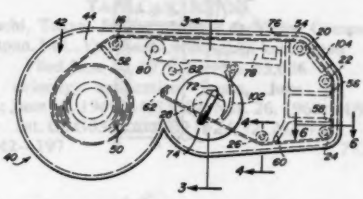
The holder comprises an adjustable frame arranged to rest on the upper rim of an open top waste basket and support a roll of punched computer tape for unreeling by rotation about a horizontal axis upon feeding of the tape endwise through a punched tape reader.

3,682,406
Patent Not Issued For This Number

3,682,407
TAPE CARTRIDGE FOR MACHINES

Harold Lichtenstein, 1226 Franklin Circle, N. E., Atlanta, Ga., and Edward Robbins, P.O. Box 9742, Atlanta, Ga.

Filed March 3, 1970, Ser. No. 15,978
Int. Cl. B65h *17/02;* B41j *15/02, 15/06*
U.S. Cl. 242—67.3 7 Claims

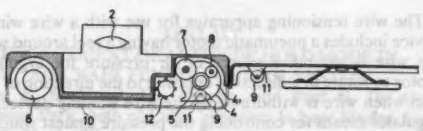


An instant load cartridge for use in any machine utilizing tape, ribbon, film or other such web-like material transported from a supply spool to a take-up spool and passing over or over and under a plurality of spools, guides or the like already existing in the machine including a sealed casing having a supply spool with the web-like material thereon, guide means for the web-like material, and means to retain the web-like material adjacent to an existing take-up reel on the machine so that the web-like material may be quickly connected to the take-up reel by use of an existing retaining key whereby the cartridge may be instantly loaded into the machine thereby eliminating the necessity of manually threading the web-like material through the existing machine for reducing the time required to replenish the supply of the web-like material in the machine.

3,682,408
FILM REWINDING DEVICE

Kanehiro Sorimachi, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Ota-ku, Tokyo, Japan

Filed March 31, 1970, Ser. No. 24,234
Int. Cl. G03b *1/04, 17/26*
U.S. Cl. 242—71.1 3 Claims



A film rewind device is characterized by a plural number of rollers which are made to contact, under pressure, a portion of the end of a spool within a cartridge which end projects out of the end plate of the cartridge, and at least one of the rollers is linked with a lever for rewinding the film

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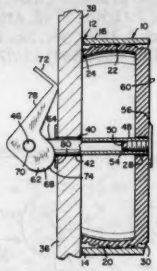
3,682,409
FILM WIND-UP SPOOL

Henry F. Hope, 195 Welsh Rd., Huntingdon Valley, Pa., and Stephen F. Hope, 2524 Wyandotte Rd., Willow Grove, Pa.

Filed April 26, 1971, Ser. No. 137,300
Int. Cl. B65h *75/22, 75/14*
U.S. Cl. 242—71.8 10 Claims

A film wind-up spool for receiving developed x-ray and other photographic film comprising a cylindrical body and a removable flanged head associated at the one end of the body. The flanged head connects to a resilient insert which fits within the interior of the body at the end thereof to removably secure the head to the body. The insert flexes from an initial, unstressed position wherein it may be readily inserted into and

removed from the end of the body to a second, binding position wherein it locks within the body to secure the flanged head to the end of the body.

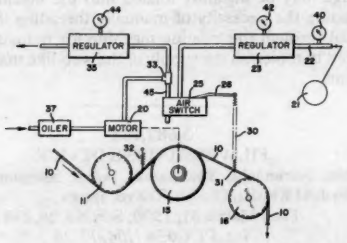


3,682,410

WIRE TENSIONING APPARATUS

Leonard C. Rinearson, 2115 Maple Grove Avenue, Dayton, Ohio

Filed Nov. 17, 1970, Ser. No. 90,366
Int. Cl. B65h *59/00*
U.S. Cl. 242—75.53 **7 Claims**



The wire tensioning apparatus for use with a wire winding device includes a pneumatic motor having a reel around which the wire is wound, a source of air pressure for urging the motor to rotate in a direction opposite to the direction of rotation when wire is withdrawn by the wire winding device, and regulator means for controlling the pressure against which the motor acts thereby to establish a controlled tension on the wire. An air switch between the air source and the motor is actuated by tension on the wire, and an air reservoir may be provided to rotate the motor in the forward direction when tension is removed thereby to remove tension from the wire completely.

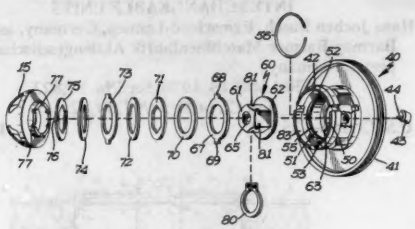
3,682,411

DRAG MECHANISM FOR FISHING REELS

Richard Dumbauld, Spirit Lake, Iowa, assignor to Berkley & Company, Inc., Spirit Lake, Iowa

Filed Jan. 5, 1970, Ser. No. 572
Int. Cl. A01k *89/00*
U.S. Cl. 242—84.2 R **13 Claims**

A quick change spool adaptor and drag mechanism for placement on the spool shaft of a conventional spinning reel. The spool adaptor includes a large rear flange and forwardly extending spool receiving arbor axially bored to be received on said spool shaft. An axial counter-bore in the arbor is designed to receive a drag modular unit having friction means adjustably preventing spool rotation until a predetermined force is applied thereto. Frictional adjustment is achieved by rotation of a knob threaded on the tip of the spool shaft, the knob being of smaller diameter than the center spool opening to permit axial removal of the spool without affecting the drag adjustment. The drag modular unit includes a flanged core element slidable on but not rotatable relative to the spool shaft and supporting a series of friction disks some keyed for rotation with the spool adaptor while at least one other disk remains rotatably fixed. The disks are squeezed together with a force dependent on the axial position of the threaded knob. The spool rotates with the arbor and is axially retained thereon by suitable friction lugs.

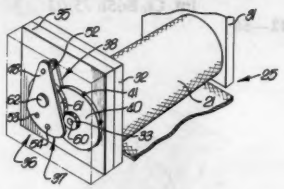


3,682,412

SAFETY RESTRAINT SYSTEM RETRACTION DEVICE

Gregory G. Kuszynski, Pasadena, Calif., assignor to American Safety Equipment Corporation, New York, N.Y.

Filed Sept. 22, 1969, Ser. No. 859,930
Int. Cl. A62b *35/00*
U.S. Cl. 242—107.4 **9 Claims**

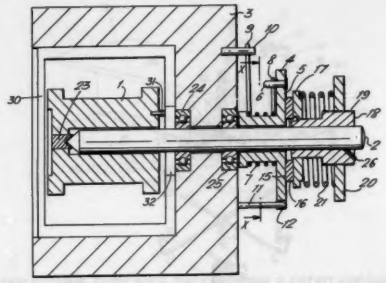


A safety restraint system for use in a vehicle having a seat with a backrest through which an occupant is restrained during emergency conditions. The system includes a shoulder or chest belt mounted at one end to a retraction device permitting protraction of the belt to a first length so that it may be connected to a restraint element and disposed diagonally across the upper torso of the occupant. This first length may be selected so that the belt is in non-pressure contact with the occupant when the occupant is seated. The retraction device may permit further protraction of the belt in response to movement of the occupant providing the protraction does not exceed a predetermined acceleration level. An improvement provides for selectively preventing the belt from retracting after protraction to the first length and in which the safety belt may be protracted to a further length by movement of the occupant but prevented from retracting to a length less than the first length so that the safety belt returns to the non-pressure contact length subsequent to every protraction due to movement of the occupant as allowed by the inertia-responsive retraction device.

3,682,413
TENSIONING DEVICE

Norbert Klimek, London, England, assignor to English Numbering Machines Limited, London, England

Filed May 11, 1970, Ser. No. 36,157
Claims priority, application Great Britain, May 13, 1969, 24,558/69
Int. Cl. B65h *59/04*
U.S. Cl. 242—156.2 6 Claims

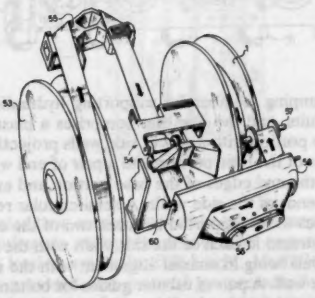


Tensioning devices for a record tape fed from a storage spool on a shaft rotatably mounted in a housing. A friction brake acting on the storage spool, comprises a first friction member rotatably mounted on the shaft and urged by a coil spring into contact with a second friction member freely rotatable about the shaft but limited to rotation through only a predetermined angle relative to the storage spool. A coil spring is arranged to exert a torque on the second friction member. This torque is smaller than the frictional torque due to the contact between the first and second friction members on rotation of the storage spool. The predetermined relative rotation between the second friction member and the storage spool which occurs on initial rotation of the shaft ensures that the tensioning device does not inhibit the initial acceleration of the storage spool which is in recording machines.

3,682,414
PUNCHED TAPE FEED AND GUIDING DEVICE FOR PAPER TAPE PUNCHES OR READERS

Giovanni Cerutti; Armando Costa, and Alessandro Cortona, all of Ivrea, Italy, assignors to Ing. C. Olivetti & Co., S.p.A., Torino, Italy

Filed June 9, 1970, Ser. No. 44,799
Claims priority, application Italy, June 9, 1969, 52155 A/69
Int. Cl. B65h *59/38, 63/02, 25/32*
U.S. Cl. 242—190 15 Claims

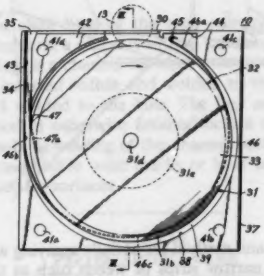


A feed and guiding device for a punched paper tape feed or reader is described. A take-up reel and a feed reel are included in the device. The support bearing of the reels are upwardly opened so that the reels can be inserted and removed by a motion which is perpendicular to their axis of rotation. A diverter for changing the movement of the tape by 180° is also provided.

3,682,415
TAPE CARTRIDGE

Kenji Ibuchi, Tokyo, Japan, assignor to Victor Company of Japan, Ltd., Yokohama, Kanagawa-ken, Japan

Filed June 10, 1970, Ser. No. 45,056
Claims priority, application Japan, June 10, 1969, 44/45016; June 10, 1969, 44/53762; Nov. 26, 1969, 44/94242
Int. Cl. G03b *1/04*; G11b *15/32, 23/04*
U.S. Cl. 242—197 7 Claims



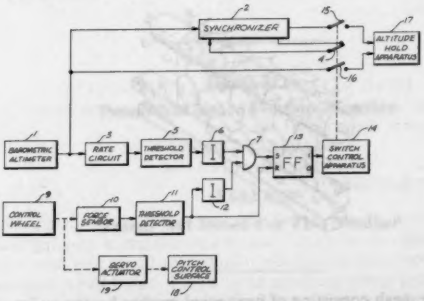
A tape cartridge contains a built-in magnetic tape supply reel having a hub and flanges enclosed within the cartridge casing. In the cartridge casing, there is provided a tape guide member which has a portion fitted between the flanges of the reel and an end portion extended toward a tape delivery opening of the casing.

3,682,416
Patent Not Issued For This Number

3,682,417
ENGAGEMENT OF ALTITUDE HOLD MODE IN AIRCRAFT FLIGHT CONTROL SYSTEM

Wayne E. Burklund, Los Angeles, and Paul G. De Alva, Canoga Park, both of Calif., assignors to Lear Siegler, Inc., Santa Monica, Calif.

Filed April 6, 1970, Ser. No. 25,666
Int. Cl. B64c *13/18*
U.S. Cl. 244—77 D 16 Claims



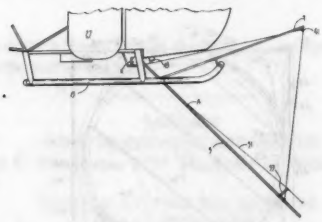
An altitude hold mode is engaged responsive to a sensor of aircraft rate of altitude change and a control wheel force sen-

sor when the rate of altitude change drops below a predetermined threshold value, and simultaneously therewith the pitch command force of the control wheel drops below a predetermined threshold value. The altitude hold mode is disengaged responsive exclusively to the control wheel force sensor when the pitch command force again rises above the predetermined threshold value.

3,682,418
AERIAL SPRAYING DEVICE

Charles G. Harter, Lihue, Hawaii, assignor to Garden Island Helicopters, Inc., Lihue, Kauai, Hawaii

Filed Oct. 29, 1970, Ser. No. 85,062
Int. Cl. B64d *1/16*
U.S. Cl. 244—136 8 Claims

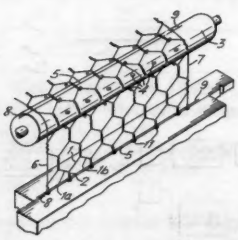


An apparatus and method for aerially spraying with agricultural chemicals narrow strips of weeds such as those found between rows of sugar cane and infield irrigation ditches. The apparatus is a stiff, elongated boom-like conduit utilized in cooperation with a helicopter. The former is mounted ventrally and forwardly of the helicopter on a pivot. The latter is equipped with a winch and frame for lowering and raising the boom on cables, as well as with a spray tank and pump for providing herbicide to a spray nozzle or nozzles attached at the outboard end of the boom. Lowering of the conduit enables a pilot to reach irrigation ditches between tall rows of sugar cane and destroy narrow strips of weeds with a minimum amount of spray and without harming the cane.

3,682,419
WIRE MESH AND METHOD OF PRODUCING SAME

Willy Vanderfaeillie, Kortrijk, Belgium, assignor to N.V. Bekaert S.A., Zwenegem, Belgium

Filed March 19, 1970, Ser. No. 20,917
Claims priority, application France, March 28, 1969, 6909445
Int. Cl. B21f *27/08*
U.S. Cl. 245—7 8 Claims



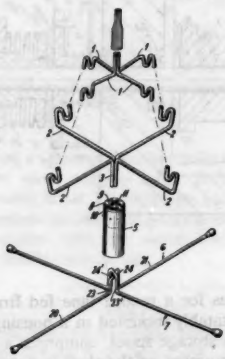
A wire mesh consisting of hexagonal meshes having an improved strength by inserting transverse wires at regular distances across the mesh and providing longitudinally extending seam wires at the lateral seams of the wire mesh.

3,682,420
Patent Not Issued For This Number

3,682,421
TREE STAND

Si Spiegel, Briarcliff Manor, N.Y., assignor to American Technical Industries, Inc., Mount Vernon, N.Y.

Filed Sept. 14, 1970, Ser. No. 71,663
Int. Cl. A47g *33/12*
U.S. Cl. 248—48 5 Claims

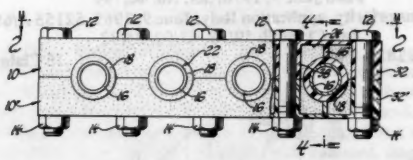


A simplified, easily assembled and disassembled tree stand for use primarily to support artificial Christmas trees. The stand comprises a tube into which the mid-portions of two relatively long rigid wire elements are inserted and held in place, at right angles to each other. The wires are essentially flat on the ground and provide the legs of the stand. A tree receiving insert is fastened in the tube at the upper end.

3,682,422
TUBE CLAMPING MEMBER

Theodore D. Evans, 15134 29 Mile Road, Romeo, Mich.

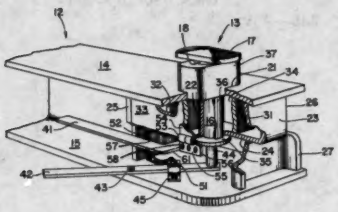
Filed Oct. 5, 1970, Ser. No. 77,874
Int. Cl. F16l *3/22*
U.S. Cl. 248—68 CB 10 Claims



A tube clamping member for supporting hydraulic hoses, tubular conduits, and the like that comprises a plastic body having a base portion with a pair of side walls projecting from the side edges of the base portion and a pair of end walls projecting from the end edges of the base portion and extending between the ends of the side walls. A semi-circular recess for receiving tubes to be supported between two of the clamping members is formed in each of the side walls with the recesses in one side wall being in coaxial alignment with the recess in the other side wall. A pair of tubular guides for bolts or similar fasteners are enclosed by the side and end walls and project perpendicularly with respect to the base portion and are spaced from each other in the longitudinal direction of the

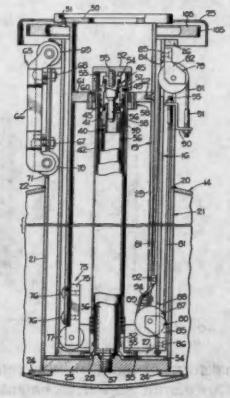
base portion so that they are disposed one on each side of the recesses.

3,682,423
RETRACTABLE TWIST LOCK
Philip H. Scarborough, Elba, Ala.
Filed Aug. 19, 1970, Ser. No. 65,118
Int. Cl. F16b *17/00*
U.S. Cl. 248—119 20 Claims



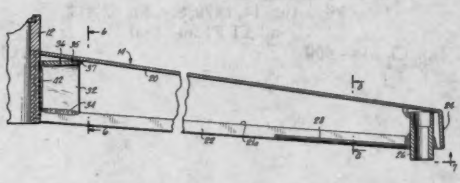
A retractable twist lock for coupling a cargo container to a platform or chassis. The twist lock is adapted when in one position to secure containers having corner fittings constructed to cooperate with the twist lock, and when in a second position to be retracted below the platform surface to enable the thereby unencumbered platform to be used for other purposes.

3,682,424
TRANSPORTABLE CAMERA PEDESTAL
Winton C. Strumpell, 6027 Corning Avenue, Los Angeles County, Calif.
Filed July 16, 1969, Ser. No. 842,147
Int. Cl. F16m *11/28*
U.S. Cl. 248—162 6 Claims



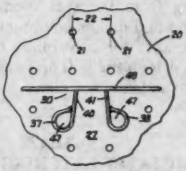
A wheeled base carries extendible column members related to each other via pulley wheel and cable apparatus for supporting a load at a preselectible height. Multiple telescoping tubes are provided with internal gas pressure for applying a force against one of the column members in a vertical direction. The pressure of the gas is such as to counterbalance the columns and load.

3,682,425
WELDED BASE FOR CHAIR OR THE LIKE
David H. Vincent, Bemus Point, and Rodney L. Johnson, Jamestown, both of N.Y., assignors to Art Metal-U S. Corp., Jamestown, N.Y.
Filed Jan. 11, 1971, Ser. No. 105,323
Int. Cl. F16m *11/20*
U.S. Cl. 248—188.7 3 Claims



In a metal chair base of the type comprising an upright cylindrical hub and a plurality of legs radiating from the hub, each of the legs is a channel member containing a short channel section inserted within and welded to the leg, and also abutting and welded to the hub. The legs and hub may be chrome plated or otherwise finished before assembly of the legs to the hub, as welding of the channel sections to the hub does not cause visible weld marks or heat tarnishing of the plated hub and leg surfaces.

3,682,426
PEG BOARD HANGER
James J. Owen, 3107 Midvale Drive, Indianapolis, Ind.
Filed April 9, 1971, Ser. No. 132,658
Int. Cl. A47g *23/02*
U.S. Cl. 248—225 9 Claims



A wire hanger having spring biased members mountable to a peg board. Each member has a downwardly extending support rod and an upwardly extending rod parallel with the support rod and perpendicular to the end of the member. The end portions of the members extend outwardly cooperating with the support rods and upwardly extending rods to secure the hanger to the board. Various configurations for the hanging portion of the members are disclosed.

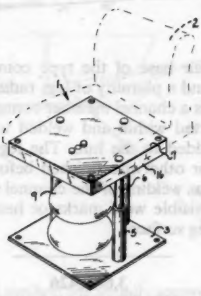
3,682,427
Patent Not Issued For This Number

3,682,428
Patent Not Issued For This Number

3,682,429
Patent Not Issued For This Number

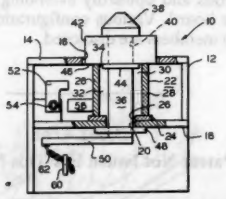
3,682,430
Patent Not Issued For This Number

3,682,431
SEAT SUSPENSION SYSTEM
Frank H. Vivian, Ottawa, Kans., assignor to Daybrook-Ottawa Corporation, Ottawa, Kans.
Filed Aug. 14, 1970, Ser. No. 63,817
Int. Cl. F16m *13/00*
U.S. Cl. 248—400 **6 Claims**



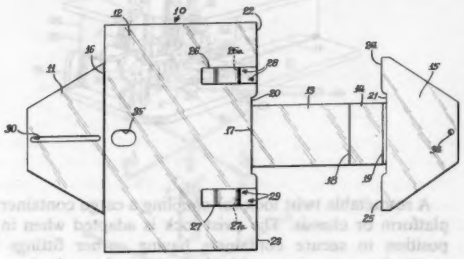
A seat suspension system for mobile vehicles includes an inflatable resilient member secured in position between a base member and a seat member wherein the base member is fixedly mounted on the mobile vehicle and has a plurality of spaced guides upstanding therefrom to cooperatively engage posts depending from the seat member which has a seat mounted thereon and means communicating with the inflatable resilient member for controlling the inflation thereof to pneumatically cushion the seat and absorb relative movement between the seat and base members.

3,682,432
RETRACTABLE LATCHING MECHANISM
Michael W. Lapaich, Rolling Prairie, Ind., assignor to Clark Equipment Company
Filed Dec. 10, 1971, Ser. No. 96,711
Int. Cl. B65d *45/00*
U.S. Cl. 248—361 R **9 Claims**



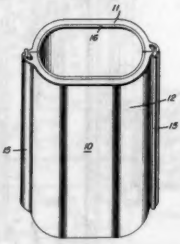
A retractable latch mechanism including a center body having a cavity therein, the center body being disposed within a frame structure to pivot between an operative position and a non-operative position. The mechanism also includes a pintle member which has a latch portion at one end thereof and is disposed through a bore in a guide member, the pintle and guide guide members being movable through an opening in the frame structure between a retracted position within the center body cavity and a raised position partially through the frame opening when the center body is in the operative position. When the pintle and guide members are in the raised position the center body may be pivoted to its non-operative position to lock the mechanism in the raised position and the pintle member may be pivoted between an unlatched position and a latched position.

3,682,433
ADJUSTABLE EASEL
Earl L. Petersen, 203 East Hawthorne Boulevard, Wheaton, Ill.
Filed July 10, 1970, Ser. No. 53,939
Int. Cl. A47b *97/08*
U.S. Cl. 248—459 **8 Claims**



An easel for supporting a loose-leaf binder, a book, or other written matter on two clips on the easel face which is angularly adjustable through a wide range of angles with great ease. The easel is formed of a series of sections joined together with hinges and arranged for either upright operating position or collapsed folded position.

3,682,434
SECTIONAL FORMS FOR CONCRETE
Robert W. Boenig, 33 Woodbury Avenue, Fairfield County, Conn.
Filed July 7, 1970, Ser. No. 52,825
Int. Cl. E04g *13/02*
U.S. Cl. 249—48 **11 Claims**



A sectional form or mold for concrete or like materials is constructed to permit easy detachment of the sections and removal of the form when the material has cured or hardened. The sections, which may be made of plastic, are united by a unique joint comprising interlocking male and female members, retained in interlocked relation by a rubber-like wedge or gasket in the form of an elongated strip, driven between the joint members. The wedge can easily be withdrawn to permit disengagement of the joint and removal of the form sections from the hardened material. The undamaged sections may then be reused.

3,682,435

BOTTOM BRICK FOR INGOT MOLDS

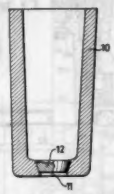
Jan Anders Stensson Lofberg, and Per Davidson, both of Sandviken, Sweden, assignors to Sandivkens Jernveks Aktiebolag, Sandviken, Sweden

Continuation of Ser. No. 707,176, Feb. 21, 1968, abandoned. This application Nov. 20, 1970, Ser. No. 91,562

Claims priority, application Sweden, June 22, 1964, 7579/64; Sept. 18, 1964, 11205/64

Int. Cl. B22d *41/10*

U.S. Cl. 249—204 3 Claims



The bottom plug for ingot molds is frusto conical and at least the upper portion thereof, facing the metal, is formed of an unburned mixture of at least about 92 percent of fine grained refractory material and not more than 8 percent of an organic binder. The plug may have a lower less heat resistant layer and may also have a thin top covering layer or coating of a highly heat resistant metal oxide or of sheet metal and may have an upper surface shape e.g. disked to prevent splashing of the molten metal as it is poured into the mold.

3,682,436

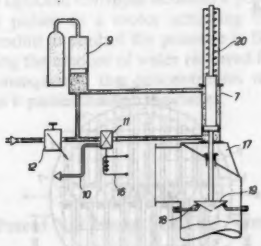
ACTUATORS FOR PRESSURE LOADED VALVES

Edouard Legille, 165 rue de Treves, Luxembourg City, Luxembourg

Division of Ser. No. 850,914, Aug. 18, 1969, Pat. No. 3,601,357. This application April 15, 1971, Ser. No. 134,358

Int. Cl. F16k *31/143*; F15b *21/08*

U.S. Cl. 251—30 7 Claims



Hydro-mechanical control devices for valves which are normally held in the closed position against applied fluid pressure are disclosed. The control devices include a differential area piston mechanically linked to the valve and acted upon by fluid furnished from an accumulator system. The force resulting from the application of system pressure to the small area end of the piston counterbalances the normal applied pressure thereby holding the valve closed and valve opening is achieved by placing the large area end of the piston in communication with the accumulator system.

3,682,437

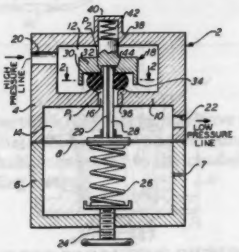
SEALING VALVE FOR PRESSURE REGULATOR

Henry A. Miller, Scotch Plains, N.J., assignor to Air Reduction Company Incorporated, New York, N.Y.

Filed March 30, 1971, Ser. No. 129,411

Int. Cl. F16k *31/145*

U.S. Cl. 251—61.2 7 Claims



A novel seat arrangement for a gas pressure regulator having an O-ring seat positioned in a retainer cap on the high pressure side of the regulating orifice wherein the regulated gas pressure is transmitted through the valve stem to the space in the retainer cap behind the O-ring seat.

3,682,438

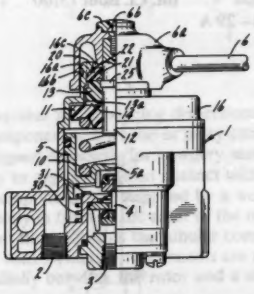
HAND CONTROL VALVE

Boleslaw Klimek, Des Plaines, Ill., assignor to The Berg Manufacturing Company, Des Plaines, Ill.

Filed April 5, 1971, Ser. No. 131,079

Int. Cl. F16k *31/524*, *31/143*

U.S. Cl. 251—256 6 Claims



A hand control valve moved by compression of a spring and a shim disc having variable depth pockets whereby the amount of prestressing of the spring may be varied without disassembly of the valve mechanism.

3,682,439

VALVE WITH ROTARY ELEMENTS

Eduardo de Lima Castro Neto, Estrada do Timbo 63, Rio de Janeiro, Brazil

Continuation-in-part of Ser. No. 783,452, Nov. 18, 1968. This application May 19, 1971, Ser. No. 144,909

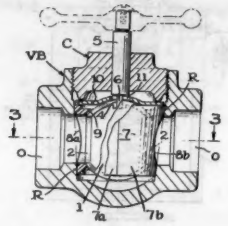
Int. Cl. F16k *5/06*

Claims priority, application Brazil, 195.555

U.S. Cl. 251—315 10 Claims

A fluid flow regulating valve having a central hollow split ball valve element rotatably controlled within an inner split ball valve housing, both being fabricated of elastomeric resilient materials such as nylon or Teflon and the like. The

inner split housing is of frusto-conical form to lend itself to compressive self-sealing adjustment within a complementally shaped recess within the main outer valve housing or body. The ball element and housing are diametrically apertured to provide for selective fluid passage therethrough, with the inner housing apertures provided with peripheral resilient annular sealing seats to complementally sealingly engage with the spherical surface of the ball valve element responsive to



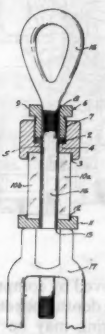
manual adjustment as well as to fluid pressure. The construction is such that fluid pressure of the flow media being valved is able to partially deform the upstream portion of the ball element and its annular inner housing seat to admit fluid pressure into the interior of the hollow ball and to greatly assist in pressure sealing, not only the downstream side of the ball and valve seat, but also subsequently the upstream side upon equalization of the fluid pressure within the ball element.

3,682,440

METHOD AND APPARATUS FOR REINFORCING THREADED CONNECTIONS UNDER DYNAMIC LOAD

Alfred C. Walker, 2584 Severn Avenue, Ottawa 14, Ontario, Canada

Filed Oct. 3, 1969, Ser. No. 864,297
Int. Cl. B66f *13/00*
U.S. Cl. 254—29 A **1 Claim**



An arrangement for reinforcing a thread connected shaft under dynamic load in which a threaded coupling is fitted over the shaft and the coupling components are turned with respect to each other to lengthen the coupling and press against abutments at the ends of the portions of the shaft to be reinforced. In this way there is applied to the portion of the shaft being reinforced a tensile load at least as great as the maximum external load to be applied to the shaft.

3,682,441

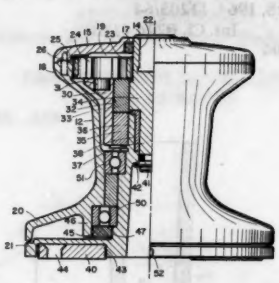
Patent Not Issued For This Number

3,682,442

TWO-SPEED WINCH

William C. Baldwin, 2861 Monroe Avenue, Anaheim, Calif.

Filed Nov. 17, 1969, Ser. No. 877,262
Int. Cl. B66d *1/30*
U.S. Cl. 254—150 **4 Claims**



A hand winch assembly having a central power input shaft to effect rotation of an external drum, the shaft when rotated clockwise effects direct rotation of the drum in a clockwise direction through a sprag clutch in a one-to-one ratio, the shaft when rotated in a counter-clockwise direction effects rotation of the drum in a clockwise direction through a planetary gear system and sprag clutch at a geared-down rotation.

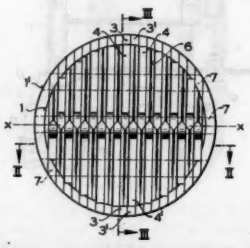
The gearing assembly and clutches are located in the body and head portion of the winch thereby reducing the overall height. The working mechanism is entirely sealed from the external elements. The winch includes a disc-like mounting ring which is mounted relatively flush with the deck of the boat and the winch body may be attached and removed from the mounting ring without disturbing the seals.

3,682,443

MIXING DEVICES FOR PLASTICS MATERIALS

Hartmut Upmeier, Zum Kahlen Berg II, 4542 Tecklenburg, Germany

Filed May 20, 1970, Ser. No. 38,958
Claims priority, application Germany, May 23, 1969, P 19 26 488.1; Oct. 28, 1969, P 19 54 242.8
Int. Cl. B01f *5/00*
U.S. Cl. 259—4 **19 Claims**



In a mixing device for plastic material a body extends substantially over the entire cross section of a flow passage through which the material flows when in use. The body comprises first and second groups of passages for the material extending through the body. Each passage is parallel to the other passages in the same group and alternates with passages in the other group. The inlet and outlet ends of the passages of the first group are disposed on one and the other side respectively

of a central longitudinal plane through the body. The inlet and outlet ends of the passages of the second group are disposed on said other and said one side respectively to said plane. The groups of passages cross over in a central region of the body such that in use temperature equalization of the material is promoted in said region.

3,682,444

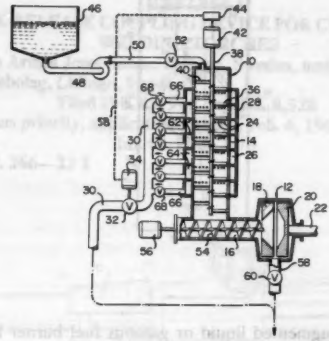
DEWATERERS FOR FIBER PULP SUSPENSIONS

Rolf Bertil Reinhall, Lidingo, Sweden, assignor to Defibrator Aktiebolag, Stockholm, Sweden

Continuation-in-part of Ser. No. 675,183, Oct. 13, 1967, abandoned. This application July 1, 1970, Ser. No. 51,419

Int. Cl. B01f 7/20

U.S. Cl. 259—6 **10 Claims**



A pressure actuated dewatering device for a fiber pulp suspension having an elongated container with an inlet and an outlet for the suspension and a motor driven stirrer. The container wall includes separate sets of perforations each set communicating with a compartment located externally of the container and each compartment communicating through one-way valve with a common discharge conduit having a valve-controlled outlet for the drainage of water pressed from the suspension. A motor driven conveyor may be provided to carry the suspension having a higher concentration of fiber pulp away from the outlet. The driving motor of either the stirrer or the optional conveyor actuates a power control relay which emits pulses to a motor actuating the valve in the discharge conduit to control the pressure in the compartment thus regulating the amount of water removed from the suspension and consequently the concentration of fiber pulp in suspension as it passes through the outlet.

3,682,445

Patent Not Issued For This Number

3,682,446

FOAM-SOLIDS BLENDER

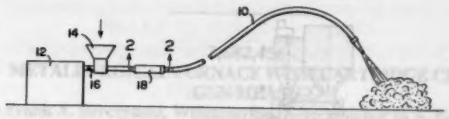
Robert E. Eron, 610-59 St., North, St. Petersburg, Fla.

Filed Aug. 21, 1970, Ser. No. 65,919

Int. Cl. B01f 7/08

U.S. Cl. 259—10 **16 Claims**

A blender system for intermixing particulate materials with foams comprising an elongated conduit in which the materials to be blended enter in a mixed or unmixed condition. A sleeve formed in the conduit has a blending means removably mounted therein which serves to direct the flow path of the materials so as to accomplish a thorough blending. The blending device may comprise a perforated membrane arranged in a convoluted configuration or a plurality of discrete substantially spherical particles. The sleeve may have a different size diameter to facilitate efficient flow and blending of the materials and is detachably connected to the conduit to permit access to the blending means.



3,682,447

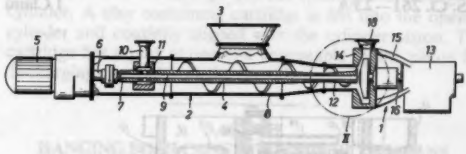
APPARATUS FOR PRODUCING DISPERSIONS OR SOLUTIONS FROM A LIQUID COMPONENT AND A SOLID OR PASTY COMPONENT

Friedrich Josef Zucker, Mulheim/Ruhr-Speldorf, and Hans-Dieter Bruchmann, Cologne-Deutz, both of Germany, assignors to Deutsche Supraton Bruchmann & Zucker KG, Dusseldorf, Germany

Filed Oct. 12, 1970, Ser. No. 80,022

Int. Cl. B01f 7/08

U.S. Cl. 259—26 **25 Claims**



A mixing apparatus for producing dispersions or solutions from a liquid component and a solid or pasty component. The apparatus is designed especially for powdery materials, which have a tendency to agglomerate on contact with liquids. The solid or pasty components are supplied by a worm conveyor terminating directly in front of the rotor of the mixer, and the liquid component flows through the tubular core of the worm conveyor to the rotor. The two components are mixed as they are impelled radially between the rotor and a stationary surface.

3,682,448

METHOD OF CONTINUOUS AND CONTROLLED PREPARATION OF THE LIQUID SELF-HARDENING MOULDING SAND AND THE INSTALLATION FOR ITS APPLICATION

Andrzej Kedzior, Wroclawska Str. 52b; Jan Horoszko, Wroclawska Str. 62; Tadeusz Olszowski, Nollo Str. 15; Edward Romaniec, Kepna Str. 19, and Stanislaw Zaremba, Przomyska Str. 4, all of Krakow, Poland

Filed Nov. 5, 1969, Ser. No. 874,314

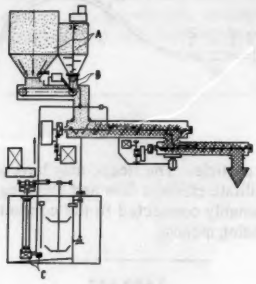
Claims priority, application Poland, Nov. 7, 1968, P. 129944

Int. Cl. B28c 7/04

U.S. Cl. 259—148 **13 Claims**

Method and apparatus for the continuous preparation and delivery of self hardening liquid containing foundry sand in which granular components are stored in hoppers and a liquid component is stored in a tank. The components are withdrawn by feeders and a pump, each powered by a separate variable

speed electric motor connected to a source through a separate rheostat. The components are mixed in a mixer, and are continuously delivered from the mixer to a distributor; the mixer



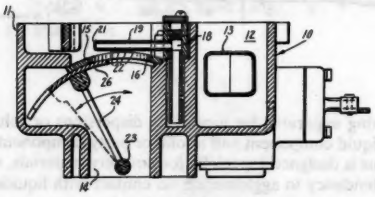
is rotatably mounted on the base of the apparatus and the distributor is rotatably mounted at the outlet of the mixer, and has a control panel at its outlet.

3,682,449

CARBURETOR AND DASH POT CONTROL THEREFOR

Alpha Severn, Sacramento, Calif., assignor to James A. Coon and Elwin Theobald, part interest to each

Filed March 11, 1970, Ser. No. 18,424
Int. Cl. F02m *11/08*
U.S. Cl. 261—23 A **1 Claim**



A motor vehicle carburetor in which an arcuate swinging throttle valve controls the venturi throats and multi-apertured fuel nozzle overlies the valve with the fuel flowing therefrom due to the suction of air flowing thereby. The apertures are arranged so that air flows by the greatest number with the valve completely open and as the valve closes, air is prevented from flowing by successive apertures in the nozzle to prevent gas from being pulled therethrough by the flow of air. The feed mechanism for feeding gasoline from the gas tank to the nozzles is conventional.

The carburetor throttle valve is controlled by a standard foot feed having a dash dot interposed in the linkage to effect a slight time delay in the opening of the throttle valve when the foot feed is suddenly depressed to its fullest extent.

3,682,450

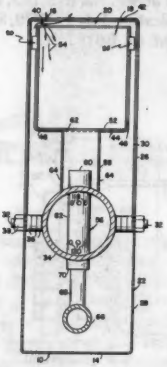
Patent Not Issued For This Number

3,682,451

DUCT BURNER FOR OPERATION WITH LIQUID OR GASEOUS FUELS

Ralph R. Vosper, San Jose, Calif., assignor to Coen Company, Inc., Burlingame, Calif.

Filed Oct. 26, 1970, Ser. No. 84,036
Int. Cl. F23l *9/04*
U.S. Cl. 263—19 A **13 Claims**



An air augmented liquid or gaseous fuel burner having a hollow post mounting a plurality of fuel discharge nozzles spaced over the length of the post and a combustion chamber aligned with each discharge nozzle. An air plenum is disposed about the nozzle, the post and the combustion chamber. An upstream end of the nozzle is connected to a liquid fuel pressure reducer having relatively large cross sectional passageways for reducing the pressure of the liquid fuel supplied from a manifold. The discharge nozzle includes a liquid fuel atomizing core which employs an atomizing plate together with an air flow entering the nozzle interior through apertures in the nozzle housing from within the hollow post. For gaseous fuel operation of the burner the gas is passed through the hollow post and the bores in the nozzle housing for a discharge towards the combustion chamber. Suitable air inlets between the nozzle discharge end and the combustion chamber are provided for admixing the discharged fuel with sufficient air to sustain the growth of the jet issuing from the nozzle. The air plenum is so constructed that it induces eddy currents within the combustion chamber.

3,682,452

Patent Not Issued For This Number

3,682,453

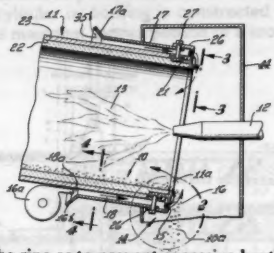
ROTARY KILN NOSE RING

Arthur C. Powell, Redlands, Calif., assignor to California Portland Cement Company, Los Angeles, Calif.

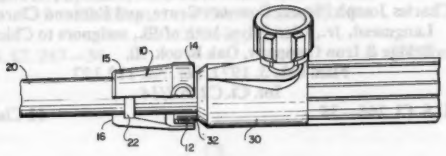
Filed Nov. 23, 1970, Ser. No. 91,809
Int. Cl. F27b *7/38*
U.S. Cl. 263—33 R **10 Claims**

A rotary kiln metallic nose ring extends about the kiln discharge end, the ring forming a series of circularly spaced

ports sized and directed to pass sufficient cooling gas into the zone adjacent the kiln discharge end for flow adjacent the exposed extent of the ring as to prevent excessive heating of the ring.

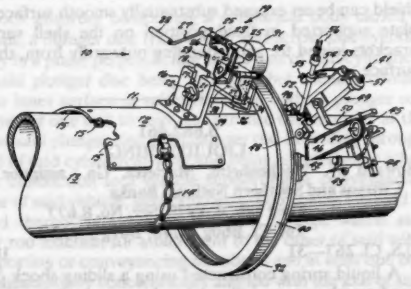


3,682,454
QUICK RELEASE COUPLING DEVICE FOR CUTTING OR WELDING TORCHES
Johann Armin Josef Bohac, Lidingo, Sweden, assignor to AGA Aktiebolag, Lidingo, Sweden
Filed Feb. 4, 1970, Ser. No. 8,528
Claims priority, application Sweden, Feb. 4, 1969, 1437/69
Int. Cl. B23k 7/10
U.S. Cl. 266—23 T **3 Claims**



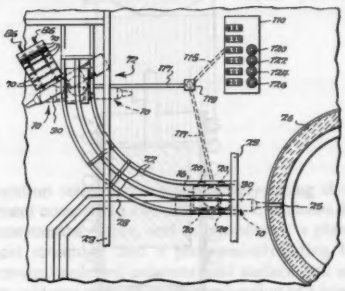
A quick release coupling device for mounting a torch head on the body of a welding or cutting torch includes pivotable gripping jaws mounted on an internally threaded sleeve or nut which screws onto the torch body. In operation, the gripping jaws are pivoted inwardly into a position wherein inwardly extending shoulders thereof surround and engage an external shoulder on the torch head, the mounting sleeve then being tightened onto the torch body so that positive, secure gripping of the torch head is effected.

3,682,455
PIPE BEVELING MACHINE
Clarence W. Baker, R.F.D. #2, Grove, Okla.
Filed June 5, 1970, Ser. No. 43,774
Int. Cl. B23k 7/04
U.S. Cl. 266—23 NN **4 Claims**



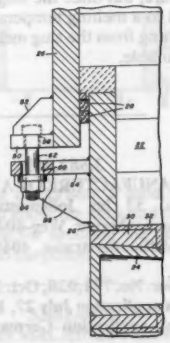
A machine for cutting a beveled end on a pipe, the device comprising an arcuate brace for positioning against the outer side of a pipe to be cut, the base being secured around the pipe by a securement chain, the base supporting a manually operated drive mechanism, the drive mechanism supporting a ring wheel, the ring wheel supporting a cutting unit which carries a cutting torch that is angularly adjustable.

3,682,456
METALLURGICAL FURNACE WITH CARTRIDGE CLAY GUN MEANS
Frank A. Berczynski, Williamsville, N.Y., assignor to A. E. Anderson Construction Corporation, Buffalo, N.Y.
Filed Oct. 21, 1970, Ser. No. 82,678
Int. Cl. C21b 7/12
U.S. Cl. 266—24 **3 Claims**



A clay gun cylinder having a pair of complementary half sections, one of which is pivotal for opening and closing the cylinder. A clay containing cartridge is fed into the opened cylinder and coaxially aligned with the cylinder piston. The cartridge has a plug at one end engageable by the piston for discharging material from the cartridge.

3,682,457
HANGING BOSH CONSTRUCTION WITH MEANS ALLOWING FOR THERMAL EXPANSION
Willis W. Hollingsworth, Naperville, Ill., assignor to United States Steel Corporation
Filed Oct. 9, 1970, Ser. No. 79,383
Int. Cl. C21b 7/00, 7/10
U.S. Cl. 266—25 **4 Claims**



An iron smelting blast furnace having a plurality of annular bosh bands girdling the refractory brick walls of the bosh portion of the furnace such that each bosh band is slightly larger in diameter than the bosh band therebelow, wherein the uppermost bosh band is secured to the furnace mantle ring structure, and each lower bosh band releasably suspended from the

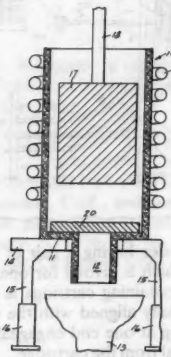
bosh band thereabove, so that removal of a lower bosh band will not require removal of bosh bands thereabove. In addition, the means by which each lower bosh band is suspended from the bosh band thereabove is adjustable to facilitate expansion of the bosh bands upon initial furnace heat-up.

3,682,458

MELTING OF REFRACTORY AND REACTIVE METALS

Thomas S. Piwonka, North Canton, and James V. Hanna, Minerva, both of Ohio, assignors to TRW Inc., Cleveland, Ohio

Filed Dec. 29, 1969, Ser. No. 888,252
Int. Cl. C21b *11/00*
U.S. Cl. 266—33 R **5 Claims**



Method and apparatus for melting metals which have a tendency to become contaminated by exposure to materials contained in conventional crucibles, wherein the slug of the metal to be melted is supported in spaced relation to the walls of the crucible and a metallic disc is positioned within the crucible to close off the pour hole. The conditions are maintained such that during the melting of the slug, the disc is not heated to a melting temperature, but once the slug is melted sufficiently, the disc is heated to a melting temperature whereby the molten material resulting from the slug melts through the disc and forms its own pour hole.

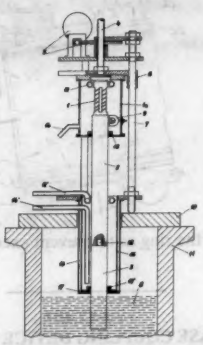
3,682,459

MANUFACTURE OF ALLOYS

Reimar Pohlman, 33 Im Johamestal-51, Aachen; Klaus Groove, 2 Reuschenberger Weg-4040, Neuss, and Walter Fichtel, 63 Schiefbaunerstrasse, 4046 Buttgen-Vorst, all of Germany

Division of Ser. No. 771,028, Oct. 28, 1968, Pat. No. 3,592,636. This application July 27, 1970, Ser. No. 64,887
Claims priority, application Germany, Oct. 31, 1967, G 51503
Int. Cl. C21c *7/00*
U.S. Cl. 266—34 R **7 Claims**

This invention relates to the introduction of a controlled quantity of a high melting metal component into a melt of a low melting base metal. This is effected by feeding a rod of the high melting component into the above melt, while the said rod is subjected to a sonic vibration, and at the same time, that portion of the rod protruding above the level of the melt is cooled.



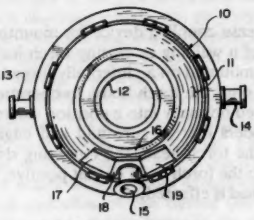
This melted ensures that the manufacture of alloys is effected with great accuracy, simplicity and economy.

3,682,460

CONVERTER VESSEL WITH HEAT SHIELD ABOUT ITS TAP HOLE

Charles Joseph Pieper, Downers Grove, and Edmund Clarence Langmead, Jr., Glen Ellyn, both of Ill., assignors to Chicago Bridge & Iron Company, Oak Brook, Ill.

Filed Feb. 3, 1971, Ser. No. 112,127
Int. Cl. C21b *7/14*
U.S. Cl. 266—35 **11 Claims**



A converter vessel rotatable about a horizontal axis and having a metal shell, internal insulation in the shell, an upper mouth, a tap hole in the upper part of the vessel below the mouth and a heat shield mounted on the vessel exterior surface in spaced relationship therefrom and covering the vessel metal shell area above and to the side of the tap hole to protect said shell area against severe heating during flow of material from the tap hole when the vessel is rotated. The heat shield can be an exposed substantially smooth surfaced metal plate supported in fixed position on the shell surface by brackets joined to, and extending outwardly from, the vessel surface.

3,682,461

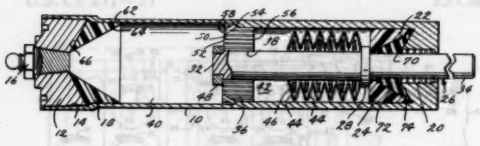
LIQUID SPRING

Howard W. Wachenheim, Marietta, Ga., assignor to The Citizens and Southern National Banks

Filed Feb. 4, 1970, Ser. No. 8,677
Int. Cl. B60g *11/46*; B61g *11/12*
U.S. Cl. 267—31 **10 Claims**

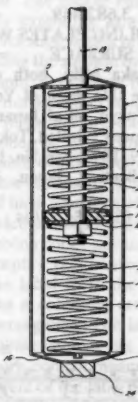
A liquid spring constructed using a sliding shock or piston head member on a piston rod and incorporating spring means under the piston head. This liquid spring includes an outer cylinder or housing closed at the top with a threaded in clo-

sure head containing a filler plug. Beneath this member is a first seal to provide a leak proof container at that end. The other end of the cylinder or housing is constructed so as to provide an integral mass that formsa portion of a second clo-



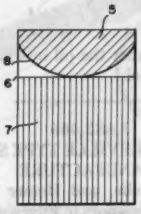
sure means. This mass has a hole through which the piston rod protrudes and the hole is shaped to accept a second seal that provides the final sealing of the housing. Beneath this seal is a bushing or bearing which is contained in the cylinder mass and which surrounds the piston rod.

3,682,462
SHOCK ABSORBERS FOR VEHICLES
Robert D. Papousek, 3233 East Third, Tucson, Ariz.
Filed Sept. 14, 1970, Ser. No. 72,019
Int. Cl. B60g 11/56
U.S. Cl. 267—34 **9 Claims**



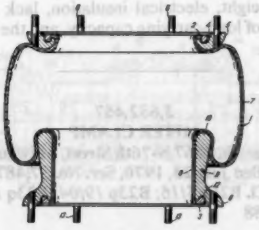
A shock absorber comprising a cylindrical body closed at both ends, a plunger disc lying within and across said cylindrical body in a plane perpendicular to the axis of said cylindrical body, said plunger disc being in sealed but slidable contact with the inner surface of said cylindrical body, a plunger rod connected at one end to said plunger disc substantially at the center of said plunger disc, said plunger rod extending through one end of said cylindrical body and being adapted at its other end for connection to a vehicle supporting or conveyancing member of said vehicle, said cylindrical body being adapted at the end thereof opposite to the end through which said plunger rod extends, for attachment to the other of said vehicle supporting or conveyancing members, and at least one coil spring substantially concentrically aligned with the axis of said cylindrical body and lying within said cylindrical body, said coil spring extending between said plunger disc and the inner surface of an end of said cylindrical body.

3,682,463
PROGRESSIVELY-ACTING SHOCK ABSORBER ELEMENT
Karl Radimirsch, Meersburg, and Dietrich Schwarz, Friedrichshafen, both of Germany, assignors to Dornier System G.m.b.H., Friedrichshafen/Bodensee, Germany
Filed July 21, 1970, Ser. No. 56,775
Claims priority, application Germany, Aug. 16, 1969, P 19 41 600.3
Int. Cl. F16f 1/36
U.S. Cl. 267—63 **8 Claims**



This invention relates to a progressively-acting shock absorber element comprising a structure which encloses cavities, such as honeycombs, tubes, and microspheres, a planar surface on said structure, and a progressively-acting load-introducing means mounted adjacent said surface and adapted to compress said structure upon the application of a load.

3,682,464
PNEUMATIC SPRING
Oldrich Krejcir, Liberec, Czechoslovakia, assignor to Autobrzdy, narodni podnik, Jablonec nad Nisou, Czechoslovakia
Filed July 29, 1970, Ser. No. 59,141
Int. Cl. F16f 3/00
U.S. Cl. 267—65 **6 Claims**

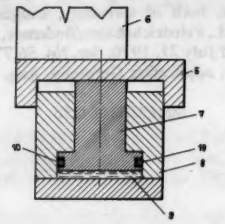


A pneumatic spring comprising a tubular body, having a neck. A piston secured about the neck and movable within the body. Retaining means for securing the beaded ends of the body to supports and to the piston.

3,682,465
WORK-TABLE ON MACHINES FOR PROCESSING METAL IN SHEET OR PLATE FORM
Eduard Alexander Hanni, Zofingen, Switzerland, assignor to Hammerle A.G., Zofingen, Switzerland
Filed Feb. 6, 1970, Ser. No. 9,272
Claims priority, application Austria, Feb. 18, 1969, 1606/69
Int. Cl. F16f 5/00, 9/00
U.S. Cl. 267—130 **1 Claim**

A work-table having a table panel, a support element which

supports the table panel across a load bearing dimension of the panel, and itself defines over the same dimension with a



bottom part an oil chamber the oil in which will support the support element and panel.

3,682,466

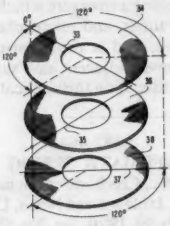
COMPOSITE BELLEVILLE TYPE SPRINGS AND MANUFACTURE

Paul V. Huchette, Latrobe, and Homer H. Hall, Jr., Vandergrift, both of Pa., assignors to Edgewater Corporation

Filed May 4, 1970, Ser. No. 34,127

Int. Cl. F16f *1/32*

U.S. Cl. 267—161 **16 Claims**



Disc spring fabrication of composites, such as fiber glass in epoxy with fiber orientation, composite material, and mounting technique teachings to produce disc springs of uniform high strength, high durability, long fatigue life in high frequency cycling applications, and desirable physical characteristics, such as low weight, electrical insulation, lack of corrosion, graduated loss of load-carrying capacity, and the like.

3,682,467

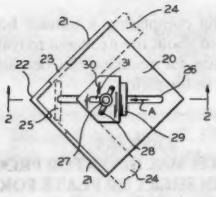
MITER CLAMP

Casper W. Heinrich, 2867 N-76th Street, Milwaukee, Wis.

Filed July 23, 1970, Ser. No. 57,487

Int. Cl. B25b *5/16*; B23p *19/04*; B23q *1/28*

U.S. Cl. 269—88 **8 Claims**



A corner miter clamp comprises a first member for applying a corner pressure to a frame and a separate second member for engaging the frame. These two members are separate from each other to prevent alignment problems resulting from a cocking of the various clamp parts and frame members.

3,682,468

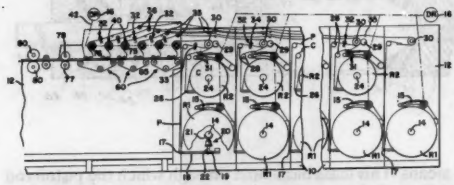
METHOD AND APPARATUS FOR COLLATING PAPER WEBS

Louis Schriber, Dayton, Ohio, assignor to Harris-Intertype Corporation, Cleveland, Ohio

Filed July 15, 1969, Ser. No. 841,761

Int. Cl. B65h *39/16*

U.S. Cl. 270—52 **16 Claims**



A series of paper webs are directed upwardly from corresponding rolls and are each attached by marginal glue spots or lines or a series of crimps to a corresponding carbon or transfer web. The sets of paper and transfer webs are directed horizontally in vertical spaced relation to corresponding feed rollers having pins which engage marginal perforations within the paper webs and feed the web sets downwardly in overlapping relation into a pin conveyor. The feed rollers are arranged in closely spaced relation, and each feed roller is rotatably adjustable relative to the drive mechanism for the rollers. Marginal glue spots or lines are applied to the paper webs just ahead of the feed rollers, and the collected webs are impacted at the glue spots to secure the webs together.

3,682,469

DEVICE FOR HANDLING PLATES WITH SMOOTH SURFACE

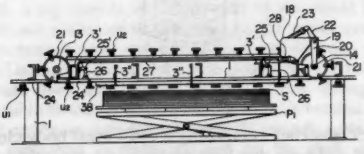
Yohnosuke Itoh; Masataka Miki, both of Tokyo; Makoto Nishiyama; Yuhnosuke Uda, both of Yokohama City, and Masaoki Terashima, Tokyo, all of Japan, assignors to Nippon Yakin Kogyo Company Limited, Tokyo, Japan

Filed March 9, 1971, Ser. No. 122,355

Claims priority, application Japan, March 14, 1970, 45/21367

Int. Cl. B65g *57/04*

U.S. Cl. 271—12 **6 Claims**

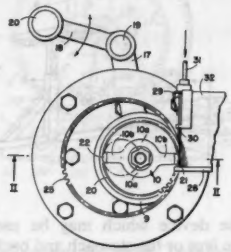


A handling device for mounting and dismounting plates with smooth surface to and from a suspension-type conveyor assembly, without interrupting the movement of the main conveyor means of the conveyor assembly. A plurality of auxiliary conveyor means are so controlled as to transfer the plates to and from the main conveyor means while running at the same linear speed with the main conveyor means. For transferring to the main conveyor means, the auxiliary conveyor means are raised above the transferring level after the transfer and then stopped. For receiving from the main conveyor means, the auxiliary conveyor means are lowered below the transferring level together with the plates after the transfer.

3,682,470
DEVICE FOR FEEDING STRIPS OF MATERIAL

Koichi Takagi, Nagoya City, and Masuho Yamada, Anjo City, both of Japan, assignors to Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, Japan

Filed July 7, 1970, Ser. No. 52,865
Claims priority, application Japan, May 17, 1969, 44/37685
Int. Cl. B65h 3/08
U.S. Cl. 271—27 13 Claims



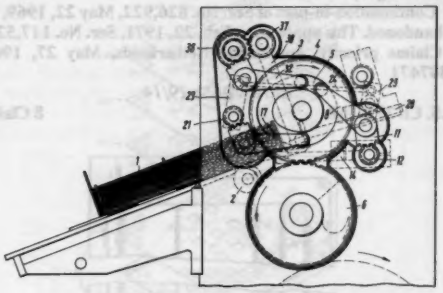
A device for feeding strips of material such as labels includes a picker having gripping means such as a suction element which is movable to engage a label from a stack of labels in a magazine and to withdraw it from a magazine. The picker comprises a rotatable manifold which is rotatably supported on a crank arm. The rotational movement of the picker is guided by a planetary gear engaged within an internal gear in a manner to cause the suction member of the picker to move inwardly substantially normal to each label to grip the label and to move it away with the picker in a direction substantially normal to the label. The picker manifold advantageously includes two radially extending arm portions which communicate during their rotation with a pressure regulating plate for alternately connecting the suction member to a vacuum and to a positive or atmospheric pressure for engaging and releasing the label during its movement. The label which is engaged and removed from the magazine is either transferred to an intermediate take off roller or applied directly to a label support surface on a rotatable drum which moves the label into association with either adhesive applying means or heating means so that it will have a surface which may be subsequently directed onto a device such as a container which is to receive the label. The receiving roller advantageously moves through a path which intercepts a belt conveyor having suction means for withdrawing the label from the individual supports and then moving it onto a receiving article such as a container which is moved thereagainst. The label receiving drum may advantageously include supporting surfaces which are associated with pressure control means for applying a receiving suction for engagement of the label and a positive pressure for the disengagement of the label as necessary. In addition the supporting surfaces may be moved outwardly for engagement of the label during the transfer thereof from the picker. The support elements may also be for either effecting the direct withdrawal of the labels from a magazine or be oriented to receive the labels from a picker member.

3,682,471
DEVICE FOR EXTRACTING BLANKS FROM A STACK

Bruno Pahlitzsch, Gneisemaustrasse 67, Berlin, Germany

Filed July 9, 1970, Ser. No. 53,555
Claims priority, application Germany, July 17, 1969, P 19 37 080.0
Int. Cl. B65h 3/10, 3/50
U.S. Cl. 271—29 8 Claims

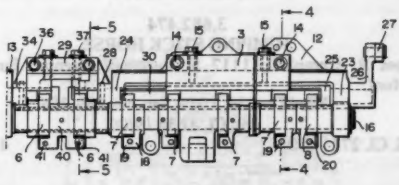
A device for extracting blanks, which are to be formed into envelopes, one at a time from a stack of blanks comprises a first lever device with a suction nozzle which engages the bottommost blank by suction and bends one edge of the blank downwardly. A second lever device operates a plunger to insert the plunger between the bent down edge of the bottommost blank and blanks thereabove, and a third lever device which operates a device to lift the blanks above the bottommost blank off the bottommost blank so that the latter can be extracted by means of a rotating roller. All three lever devices have respective cam follower rollers which engage in a single elliptical cam track groove in one face of a disc cam which is rotatable about an axis, the groove being eccentric to the axis.



3,682,472
GRIPPER BRIDGE FOR TRANSFER CYLINDER IN ROTARY PRINTING PRESS HAVING A SHEET REGISTERING CORRECTING DEVICES

Karl Barthel, Pfarrgasse, Germany, assignor to Heedelberger Druckmaschinen Aktiengesellschaft, Heidelberg, Germany

Filed Feb. 20, 1970, Ser. No. 13,050
Claims priority, application Germany, Feb. 27, 1969, P 19 09 795.1
Int. Cl. B65h 9/04
U.S. Cl. 271—53 2 Claims



In a transfer cylinder of a rotary printing press, a combination of a device for correcting registry of a sheet being printed by deforming the leading edge of the sheet, a gripper bridge including three gripper pad bars disposed end-to-end over the length of the bridge, each of the pad bars being individually adjustable in elevation and having a plurality of grippers associated therewith, and an adjusting member carrying the middle gripper pad bar and the grippers associated therewith and being adjustable along the path of feed of the sheet for deforming the leading edge of the sheet, and means effective during operation of the correcting device for closing all of the grippers associated with the middle gripper pad bar and only the outer endmost grippers of the grippers associated with the outer gripper pad bars, and releasing locking pressure of the remaining grippers associated with the outer gripper pad bars and located between the closed outer endmost grippers thereof and the closed grippers associated with the middle gripper pad bar.

3,682,473

FIRST-IN FIRST-OUT STORING DEVICE FOR POSTAL DOCUMENTS

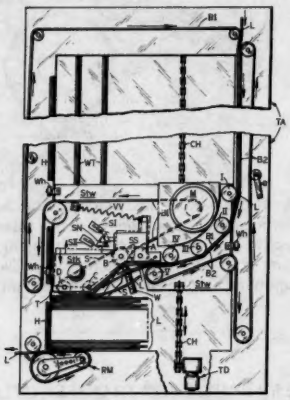
Cornelis Kuyt, Katwijk Aan Zee, Netherlands, assignor to DeStaat der Nederlanden Ten Deze Vertegenwoordigd Door De Directeur-General Der Posterijen Telegrafie en Telefonie, The Hague, Netherlands

Continuation-in-part of Ser. No. 826,922, May 22, 1969, abandoned. This application Feb. 22, 1971, Ser. No. 117,520

Claims priority, application Netherlands, May 27, 1968, 6807471

Int. Cl. B65h *29/14*

U.S. Cl. 271—68 8 Claims



A movable carriage adjacent the input end of a stack of postal documents having a pivoted spring-urged stacking head in contact with the stack, which head both feels and feeds the documents in the stack and operates a pair of micro switches on the carriage to move the carriage toward or away from the stack to maintain substantially the same pressure by the head on the stack regardless of the number of documents fed to or removed from the stack.

3,682,474

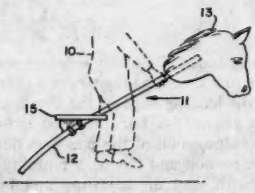
JUMPING STICK HORSE

James R. Campbell, 1117 S. Bozeman Avenue, Bozeman, Mont.

Filed Dec. 30, 1969, Ser. No. 889,266

Int. Cl. A63g *19/00*

U.S. Cl. 272—1 D 4 Claims



A stick horse on which a person rides with a bouncing movement, comprising an elongated rod made of resilient material which the rider straddles and holds so that the rod has one end resting on the ground and the other end inclined upwardly from the ground, a head on the upwardly inclined end of the rod simulating an animal head, and a seat mounted intermediately along the length of the rod on which the rider alternately sits to apply a downward thrust to the rod bending same, and then raises himself slightly from the seat whereupon the rod bends upwardly under elastic stress.

3,682,475

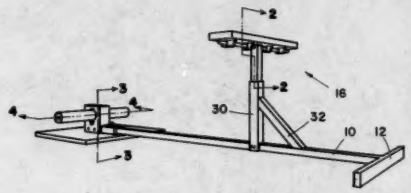
EXERCISE DEVICE HAVING FOOT RESTRAINING MEANS

Norman E. Walker, also Known as Clint Walker, 132 South Rodeo Drive, Beverly Hills, Calif.

Filed June 4, 1970, Ser. No. 43,482

Int. Cl. A63b *23/02, 23/04*

U.S. Cl. 272—58 5 Claims



An exercise device which may be used to develop the muscles of the legs or the stomach and back. The device has a tilting seat and a padded foot holding bar. The height of the seat is adjustable. The foot holding bar may be positioned at a number of locations, depending on the exercise being performed. The foot holding bar is free to rotate about its longitudinal axis.

3,682,476

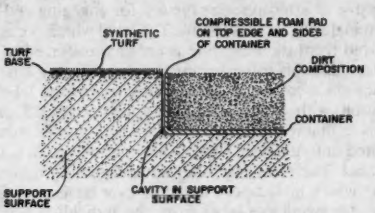
CONVERTIBLE ATHLETIC FIELD

George C. Kempson, Webster Groves, Mo., and Arthur N. Gilbert, St. Louis, Mo., assignors to Monsanto Company, St. Louis, Mo.

Filed Dec. 4, 1969, Ser. No. 882,288

Int. Cl. A63b *71/00*

U.S. Cl. 273—25 2 Claims



An athletic field having a synthetic turf surface is provided. The surface contains at least one opening in which is located a container filled with dirt or similar material packed to provide a surface substantially level with the base of the synthetic turf. These openings with the dirt filled containers provide an area on the synthetic turf covered field for sliding during sporting events in which sliding is required, for example, broad jumping, baseball, and the like. The openings and containers may be of various shapes, depending on the desired use.

3,682,477

RODENT RACING DEVICE

William Joseph McMahon Harkins, 1322 Allesandro Street, Los Angeles, Calif.

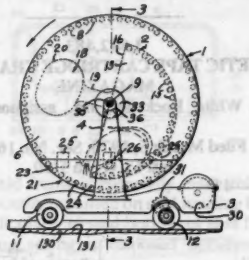
Filed April 16, 1971, Ser. No. 134,757

Int. Cl. A63f *9/14*; F03g *5/02*

U.S. Cl. 273—86 B 13 Claims

The rodent racing device comprises a circular cage having treads or rungs mounted for rotation. A perch of semicircular form is in the cage and a rodent such as a mouse may rest upon the perch or move from the perch onto the cage for the purpose of climbing the rungs of the cage to cause rotation

thereof. In one adaptation the cage and perch are supported on a wheeled vehicle having a small electric motor and a battery for driving the motor. The motor drives the vehicle on a path at a slow rate and means is provided whereby the vehicle is accellerated in movement when the rodent contacts the



rungs of the cage and rotates the same. Two matched rodent racing devices can be utilized on a circular track and are diametrically positioned on said track. The relative speed of movement of one vehicle over the other vehicle determines the winner of the race.

3,682,478

THIN, SELF-SUPPORTING, DUCTILE, PLASTIC TARGET SHEET

Lindsay Charles Knight, 426 Tarakan Ave., Albury, New South Wales, Australia

Filed Jan. 31, 1969, Ser. No. 795,639

Claims priority, application Great Britain, Feb. 8, 1968, 6,297/68

Int. Cl. F41j 3/00

U.S. Cl. 273—102.2 S **5 Claims**

A one-piece, self-supporting target made of relatively rigid, ductile synthetic plastic material having low shock transference characteristics. The target is formed with longitudinal and transverse strengthening formations, and, due to its thickness and ductility, a projectile passing through the target forms a flanged hole having dimensions less than the corresponding dimensions of the projectile.

3,682,479

THREE DIMENSIONAL PUZZLE

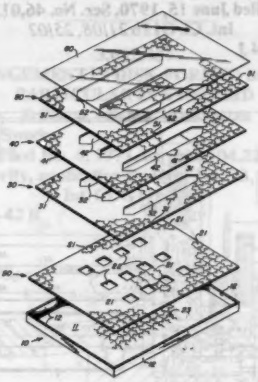
Edmund S. Miller, and Nancy W. Miller, both of 127½ N. Main Street, Urbana, Ohio

Filed May 11, 1970, Ser. No. 36,119

Int. Cl. A63f 9/12

U.S. Cl. 273—157 R **12 Claims**

A three dimensional puzzle formed of several, similarly or differently colored, stacked layers of interlocked puzzle segments with each layer containing one or more voids through



which portions of the layers beneath it and the interior surface of a supporting tray are visible to produce a pleasing visual effect.

3,682,480

TAPE PLAYER FOR PLAYING A PLURALITY OF ENDLESS MAGNETIC TAPE CARTRIDGES

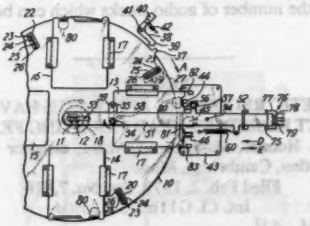
Itsuki Ban, 829, Higashi-Oizumimachi, Nerima-ku, Tokyo-to, Japan

Filed Feb. 4, 1970, Ser. No. 8,518

Claims priority, application Japan, Feb. 5, 1969, 44/8167

Int. Cl. G11b 23/12

U.S. Cl. 274—4 F **1 Claim**

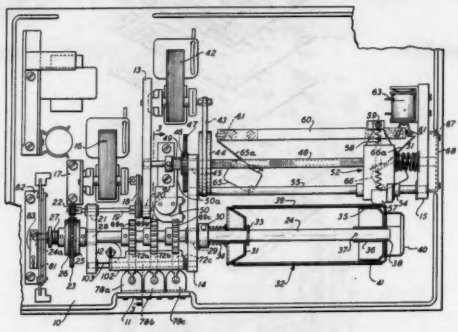


A tape player for playing a plurality of endless magnetic tape cartridges received in a container, comprising a rotatable container accommodating the plurality of endless magnetic tape cartridges, a mechanism to stop rotation of the container to bring the cartridge to be played to a predetermined previous position, a movable device for reciprocating the cartridge between the previous position and a predetermined playing position, tape-reproducing members comprising a capstan and a magnetic head for playing the cartridge moved to the playing position, and a control device for controlling operation of said movable device to move said movable device from the playing position to the previous position in response to completion of the play of the cartridge.

3,682,481
TEACHING MACHINE WITH SERVO-CONTROLLED TRACK SELECTOR

Bruce N. Whitlock, Morris Plains, N.J., assignor to McGraw-Edison Company, Elgin, Ill.

Filed June 15, 1970, Ser. No. 46,013
Int. Cl. G11b *21/08, 25/02*
U.S. Cl. 274—4 J 6 Claims

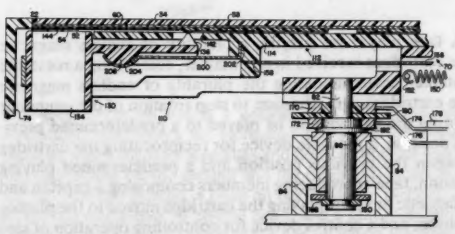


A teaching machine for selectively reproducing the respective audio tracks on a record drum lengthwise thereof has a servo-controlled track selector wherein a drive motor rotates the drum through a slip-clutch, and a series of ratchet wheels on the shaft of the drum are offset by fractional tooth differences and are engageable by respective pawls to stop the drum at as many different positions as the number of ratchet wheels times the number of teeth on each ratchet wheel. The pawls are actuated by respective solenoids controlled by a commutator operated by the drum shaft. The commutator has radially spaced brushes connected respectively to the solenoids, and has as many segments as the teeth on each ratchet wheel. Further, the portions of each segment engageable by the respective brushes are offset the same as are the teeth of the ratchet wheels. By selecting the circuits of the respective brushes and segments, the solenoids are actuated selectively to cause the drum to be indexed. By also selecting between one or another of two side-by-side heads spaced by an odd multiple of one-half the distance between successive index positions, the number of audio tracks which can be selected is doubled.

3,682,482
MAGNETIC RECORDING APPARATUS HAVING AN IMPACT RESISTANT HEAD MOUNTING FEATURE

William A. Holmes, Marblehead, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Feb. 2, 1970, Ser. No. 7,810
Int. Cl. G11b *5/58, 25/04*
U.S. Cl. 274—4 H 10 Claims

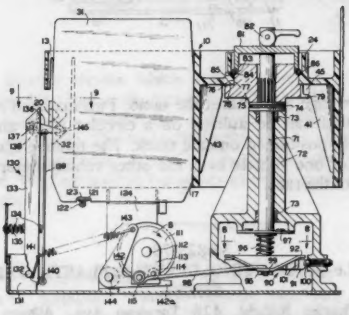


Magnetic sound recording and reproducing apparatus adopted for use with a recording member having a magnetic surface concentrically disposed about a given axis with respect to a spirally grooved tract. The apparatus is characterized in the use of a head-follower assembly having a follower pin engageable with the spiral tract to establish a locus for a magnetic recording trace. The assembly is resiliently mounted in a manner permitting the head-follower assembly to pivot about the point of contact of the follower pin with the tract.

3,682,483
MAGNETIC TAPE CARTRIDGE CHANGER AND MAGAZINE

Rowland K. White, Rockville, Md., assignor to Qatron Corporation

Filed March 5, 1970, Ser. No. 16,703
Int. Cl. G11b *5/00*
U.S. Cl. 274—4 F 8 Claims



A record changer for magnetic tape recordings contained in tape cartridges, enables the random or programmed selection of tape cartridges. The changer moves a selected cartridge from a storage position in a magazine into play position, and after playing of the recording, the changer returns the cartridge to storage position in the magazine. The magazine is cylindrical in overall configuration, and has a plurality of cartridge receiving pockets arranged on radii of the magazine, which define open ended through passages axially along the magazine. Each pocket contains a resilient detent cooperating with a corresponding indent on an inserted cartridge for releasably retaining cartridges inserted in the pockets. The magazine is mounted on a rotatable spindle, for stepwise indexing of successive pockets over a playing head or magnetic transducer. A cartridge actuator is located adjacent the playing head to advance and retract a juxtaposed tape cartridge between a stored or retracted position in the magazine, and an extended or play position with its tape in engagement with the transducer and a tape driving capstan.

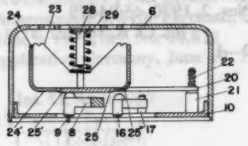
3,682,484
TOY PHONOGRAPH

Katsumi Watanabe, No. 371 Ozenji, Kawasaki-shi, Kanagawa-ken, Japan

Filed Dec. 16, 1970, Ser. No. 98,679
Int. Cl. G11b *3/00;* A63l *3/28*
U.S. Cl. 274—7 1 Claim

A toy phonograph wherein a housing lid is pivotally mounted on a housing so as to be operable, and wherein a fixed turntable for supporting a disc and a driving mechanism therefor are mounted on said housing, while a loudspeaker and a pickup mechanism are arranged on said housing lid, characterized in that said loudspeaker comprises a conic diaphragm, a low-cylinder-shaped frame disposed at the back of said conic diaphragm the outer peripheral portion of said diaphragm being fixed to said frame, a slot being formed in the bottom of said frame so as to extend from the central portion of said bottom in the radial direction, and a cantilever type

diaphragm laid in said slot, one end of the second-mentioned diaphragm nearer to said central portion of said bottom and the central portion of said conic diaphragm being kept in contact with or being secured to each other, while the connected portion between the other end of said cantilever type

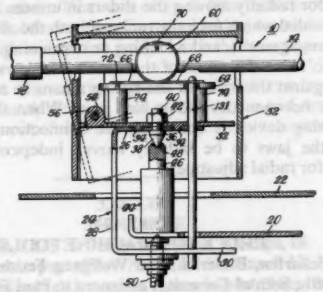


diaphragm and said frame is especially made thin, said loudspeaker being pivotally mounted on said housing lid so as to be rockable perpendicularly to said bottom of said frame, and in that an expanding spring is disposed between said conic diaphragm and said housing lid.

3,682,485
PHONOGRAPH TONE ARM

Dwipendra Nath Guha, Benton Harbor, Mich., assignor to V-M Corporation, Benton Harbor, Mich.

Filed Jan. 15, 1971, Ser. No. 106,768
Int. Cl. G11b *3/10*
U.S. Cl. 274—23 R **16 Claims**



A tone arm is supported by a rolling pivot for vertical movement relative to a horizontal base plate which freely swings on a vertical axis.

3,682,486
PRESSURE PAD

Brian L. Zwetzig, Stone Park, and Don R. Coy, Palatine, both of Ill., assignors to Ampex Corporation, Redwood City, Calif.

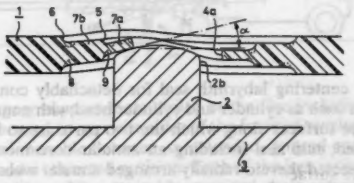
Filed Dec. 11, 1969, Ser. No. 884,283
Int. Cl. G11b *5/00*
U.S. Cl. 274—4 B **2 Claims**

A pressure pad for magnetic tapes and particularly for use within magnetic tape cartridges is provided with tape engaging synthetic fibers individually attached at inner ends to a base and with outer free ends for engaging the tape. The fibers are substantially parallel to each other and normal to the plane of the tape and are sufficiently flexible to be bent by the tape and to provide a soft, smooth surface defined by a multiplicity of points of contact. The fibers provide an acceptable low sliding frictional contact with the tape.

3,682,487
ARRANGEMENT IN DISK-FORMED BODY, IN PARTICULAR IN A RECORD

Hans Gustav Eriksson, Sankt Erikegatan 65, 113 20 Stockholm, Sweden

Filed Jan. 6, 1971, Ser. No. 104,228
Claims priority, application Sweden, Jan. 23, 1970, 796/70
Int. Cl. G11b *3/62*
U.S. Cl. 274—42 R **6 Claims**

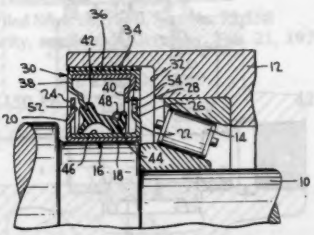


A phonograph record having a stepped inner annular area terminating in a central hole. A plurality of radial slits extended from the central hole through the entire extent of the inner annular area and recesses are provided to facilitate axial bending of the stepped landings.

3,682,488
SEALING DEVICE

Akira Matsushima, Tokyo, Japan, assignor to Nippon Oil Seal Industry Co., Ltd., Kanagawa, Japan

Filed Sept. 10, 1970, Ser. No. 70,985
Claims priority, application Japan, Sept. 10, 1969, 44/85614
Int. Cl. B16d *53/00*
U.S. Cl. 277—37 **3 Claims**



An oil seal consists of an outer member having radial flanges at its axially opposite ends and an inner member having radial flanges at its axially opposite ends. One of the flanges of the outer member carries a resilient sealing lip in contact with the cylindrical portion of the inner member. Small clearances are provided between the flanges of the outer member and their respective adjacent flanges of the inner member. The inner diameter of the flanges of the outer member are smaller than the outer diameters of their respective adjacent flanges of the inner member. A thin resilient material is coated on the outer cylindrical surface of the outer member.

3,682,489

CENTERING LABYRINTH SEAL

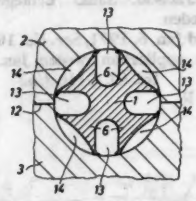
Hans Fischer, Urbanstrasse 54, D 85 Nurnberg, Germany

Filed July 28, 1970, Ser. No. 58,933

Claims priority, application Germany, Aug. 1, 1969, P 19 39 195.8

Int. Cl. F16j *15/48*; F16l *19/00*

U.S. Cl. 277—53 8 Claims



A centering labyrinth seal for detachably connecting two parts such as cylinder and cylinder head with annular grooves in the surfaces along which the two parts are to be interconnected, said seal including an annular core member having connected thereto radially arranged annular webs with elastically or plastically and elastically deformable sealing lips adapted to engage wall portions of said grooves and to follow axial and radial deformations thereof.

3,682,490

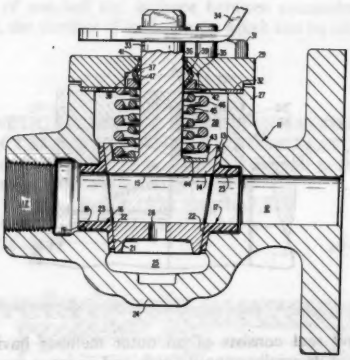
STEM OR SHAFT SEAL

William G. Lunt, Monroeville, Pa., assignor to Rockwell Manufacturing Company, Pittsburgh, Pa.

Filed Aug. 24, 1970, Ser. No. 66,400

Int. Cl. B65d *53/06*

U.S. Cl. 277—102 9 Claims



A rotatable valve stem or like shaft extending through an opening in a stationary part such as a valve body wall is surrounded by an integral relatively thin-walled tubular plastic seal element that due to its forming under axial compression in a die incorporates an expanded circumferential hoop stress region tending to increase the seal around the shaft. The element is axially biased toward a zone of sealing engagement with the stationary part around the opening.

3,682,491

POWER-OPERATED PRECISION CHUCK

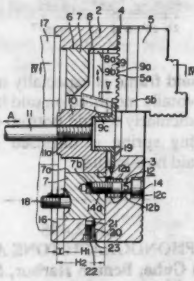
Katsuhiko Sakazaki, Nagoya, and Shigeru Saruhashi, Tsushima, both of Japan, assignors to Howa Kogyo Kabushiki Kaisha, Nagoya-shi, Japan

Filed Dec. 15, 1970, Ser. No. 98,376

Claims priority, application Japan, Oct. 29, 1970, 45/96691; Nov. 2, 1970, 45/94679

Int. Cl. B23b *5/22*, *5/34*

U.S. Cl. 279—1 19 Claims



A chuck comprises radially slidable work-gripping jaws with racks, radially movable sliders with racks engageable with the racks of the jaws, and an axially movable slider-actuating means for radially moving the sliders in unison. Spring means are provided which urge the racks of both the sliders and jaws out of engagement, and a locking or restraining device is provided to force the racks of the sliders and jaws into engagement against the force of the spring means to make the connection between the sliders and jaws. When the locking or restraining device is unlocked, the connection is broken to allow the jaws to be radially moved independently of the sliders for radial adjustment.

3,682,492

CHUCK FOR MACHINE TOOLS

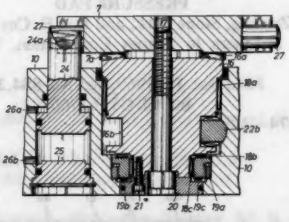
Hans Scharfen, Buderich, and Wolfgang Feustel, Dusseldorf-Garath, both of Germany, assignors to Paul Forkardt Kommanditgesellschaft, Dusseldorf, Germany

Filed June 17, 1970, Ser. No. 46,994

Claims priority, application Germany, June 18, 1969, P 19 30 870.4

Int. Cl. B23b *31/34*

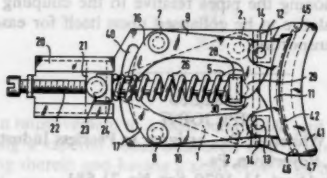
U.S. Cl. 279—5 10 Claims



The specification discloses a chuck having work axis on which the body is rotatable. The chuck has opposed workpiece engaging jaws therein rotatable about a common axis perpendicular to and intersecting the workpiece axis. One of the jaws is movable toward and away from the other for clamping and releasing workpieces, while shifting means are provided for the other jaw for shifting it angularly about the common axis of rotation of the jaws to move a workpiece in the chuck into predetermined machining positions and also into a loading and unloading position.

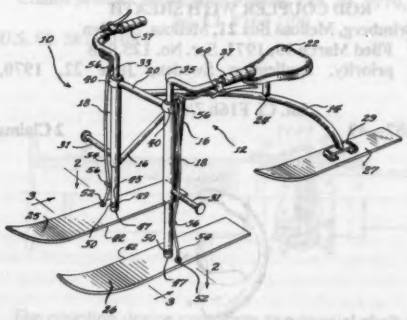
3,682,493
Patent Not Issued For This Number

3,682,494
TOE IRON FOR SAFETY SKI BINDINGS
Hans Otto Frisch, Blumenstrasse 4, 8105 Farchant, Germany
Filed June 9, 1970, Ser. No. 44,811
Claims priority, application Germany, June 19, 1969, P 19 30 997.8
Int. Cl. A63c 9/00
U.S. Cl. 280—11.35 T 7 Claims



A soleholder member constitutes the coupling link of a four-bar linkage, which comprises two-armed levers that are connected to a carrier, which is pivoted to a baseplate that is fixed to the ski. The distance between the fulcrums of the levers exceeds the distance between the pivotal axes of the soleholder member. That arm of each lever which does not carry the soleholder member forms a locking member, which cooperates with a stop that is rigid with the baseplate. When the soleholder member is in its normal position, said locking members lock the carrier against a pivotal movement to respective sides. A spring is held on the carrier and opposes a pivotal movement of the four-bar linkage from its normal position.

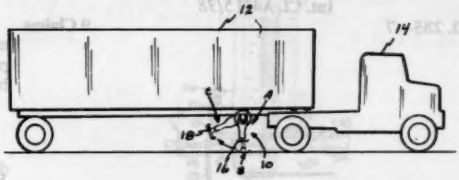
3,682,495
SNOW BIKE
Kourosh Zaimi, 1325 N. Dearborn Pkwy., Chicago, Ill.
Continuation-in-part of Ser. No. 812,545, March 12, 1969, abandoned, which is a continuation-in-part of Ser. No. 678,824, Oct. 30, 1967, abandoned. This application Dec. 7, 1970, Ser. No. 95,837
Int. Cl. B62b 13/14
U.S. Cl. 280—12.14 22 Claims



A winter sports vehicle including a pair of front support ski-like runners each separately manipulatable by the vehicle operator to provide a vehicle motion control that is comparable to that utilized by a skier. The vehicle is disclosed in gravity, motor, and operator powered forms.

3,682,496
Patent Not Issued For This Number

3,682,497
RADIAL FOLD-UP LANDING GEAR
Thomas B. Dalton, Muskegon, Mich., assignor to Westran Corporation, Muskegon, Mich.
Filed Sept. 4, 1970, Ser. No. 69,722
Int. Cl. B60s 9/02
U.S. Cl. 280—150.5 6 Claims



A landing gear support for a trailer or the like including a pair of legs secured to opposite sides of the forward portion of the trailer and movable between an extended, ground engaging position and a retracted position. Each of the legs includes a gear mechanism with a rotatably mounted shaft extending therebetween such that with a single manual crank both legs may be moved between the extended position and the retracted position. Each of the legs may then be folded upwardly to a substantially horizontal position beneath the trailer body, providing greater ground clearance. To provide the upward movement, the upper ends of each of the legs are secured to swivel members which are pivotally mounted upon base members that are secured to the trailer body, such that the legs may be pivoted about a transversely extended axis to their folded-up position. Each of the swivel members has a spring-loaded pin mounted thereon for insertion into a first hole formed in its associated base member for securing the leg in a vertical unfolded position, and a second hole formed in the base member for securing the leg in its folded-up position.

3,682,498
SAFETY BELTS
nee Wilke Edith Rutzki, Richard-Wagner-Strabe 37, Heidelberg-Dossenheim, Germany
Filed Sept. 18, 1970, Ser. No. 73,558
Claims priority, application Germany, Feb. 21, 1970, P 20 08 048.2
Int. Cl. B60r 21/10
U.S. Cl. 280—150 AB 12 Claims

A vehicle safety base is provided with an inflatable protective device. Inflation occurs when the safety belt has a tension stress applied to it. The safety belt is constructed in the form of a tube or hose so that its large internal volume can serve for supply of the pressure medium to the protective device.

3,682,499

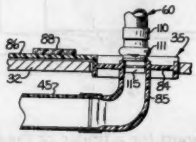
Patent Not Issued For This Number

3,682,500

SUCTION HOSE FOR VACUUM CLEANING SYSTEM FOR USE WITH HOSE PLUG-IN AND HOSE RETRACTING OUTLETS

James C. Hamrick, Matthews, N.C., assignor to Jet Line Products, Inc., Matthews, N.C.

Division of Ser. No. 788,376, Jan. 2, 1969, Pat. No. 3,593,363.
This application Jan. 7, 1971, Ser. No. 104,634
Int. Cl. A47l *5/38*
U.S. Cl. 285—7 **9 Claims**



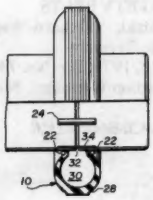
A suction hose for a vacuum cleaning system is provided with adapter means on the end thereof for selective connection to a plug-in receptacle outlet as well as a receptacle outlet of the hose retracting type and for permitting the hose to be moved into retractably stored position in the conduit connecting the retracting type of receptacle outlet to the vacuum cleaner unit.

3,682,501

FLEXIBLE COUPLING

Robert J. Burcin, Madison, N.J.; Orville L. Johnson, San Jose, Calif., and Rene P. Mouton, Nederland, Tex., assignors to Foster Wheeler Corporation, Livingston, N.J.

Filed Dec. 14, 1970, Ser. No. 97,633
Int. Cl. F16l *51/02*
U.S. Cl. 285—114 **2 Claims**



A flexible coupling is provided for joining the ends of two cylindrical conduits in flow communication for the purpose of conveying fluids under pressure. The body of the coupling is inflated by the pressurized fluid such that the opposite sides of the coupling are forced against the end of the conduits.

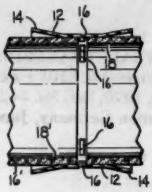
3,682,502

PIPE COUPLING

Winfield F. Corriston, Far Hills, and Robert W. Heisler, Somerville, both of N.J., assignors to Johns-Manville Corporation, New York, N.Y.

Filed June 29, 1970, Ser. No. 50,627
Int. Cl. F16l *21/00*
U.S. Cl. 285—235 **3 Claims**

This invention relates to a pipe coupling for joining the ends of two sections of pipe in axial communication. The coupling is defined by a thin walled flexible tubular sleeve having peripherally spaced apart generally inflexible internal abutments for positioning the pipes relative to the coupling but permitting the sleeve to be collapsed upon itself for ease of handling and transporting.

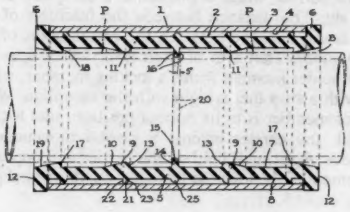


3,682,503

PIPE JOINT

Stanley Bloom, Whitehall, Pa., assignor to Peerless Industries, Incorporated, Boyertown, Pa.

Filed Sept. 11, 1970, Ser. No. 71,581
Int. Cl. F16l *17/00*
U.S. Cl. 285—345 **1 Claim**



A double hubless compression joint for pipes includes a rigid outer retaining sleeve containing an interior resilient sleeve gasket provided with inwardly directed projections on its inner periphery. Prior to the assembly of a pair of end to end pipe sections, the inner diameter of the gasket projections is less than the outer diameter of the pipe sections whereby upon insertion of the pipe ends into the gasket bore, the projections are radially and outwardly displaced against the resistance of the rigid retaining sleeve.

3,682,504

ROD COUPLER WITH SHEATH

Torsten Brimberg, Mellosa Box 21, Mellosa, Sweden

Filed March 19, 1971, Ser. No. 125,958
Claims priority, application Sweden, June 22, 1970, 8569/70
Int. Cl. F16b *7/04*
U.S. Cl. 287—49 **2 Claims**

A coupler for releasably connecting two or more rods to one another when erecting structures such as shelving, storage racks, and the like with a plastic snap-on sheath to provide a smooth outer surface and facilitate dust removal and the maintenance of hygienic conditions for the structure.

3,682,505

MEANS FOR MOUNTING SHEAVES, ETC.

David Firth, 1441 E. Jefferson Blvd., South Bend, Ind.

Filed Oct. 31, 1969, Ser. No. 872,942
Int. Cl. F16d 1/06
U.S. Cl. 287—52.06 5 Claims

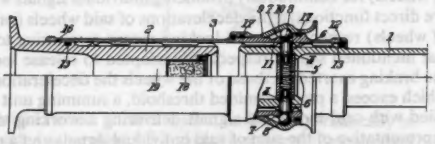
An improvement to a shaft-mountable unit including a hub having a tapered bore, a tapered split contractible bushing fitting therein and having a shaft bore. The hub and bushing are formed with confronting parts defining longitudinal screw holes each having a screw threaded wall in one of the hub and bushing and a thread-less wall in the other other of the hub and bushing. Each screw hole has an outer open end in the larger end of said other of the hub and bushing and the adjacent end of said one of the hub and bushing. A screw is turned into each hole in threaded engagement with said one of the hub and bushing. A shoulder is formed on said other of the hub and bushing with the screw being tightened thereagainst for wedging the bushing between the hub and a shaft. The improvement wherein said one of the hub and bushing defines at least in part a plurality of longitudinal bores formed within the unit. Each bore is aligned and in communication with a screw hole and has an outer open end in the opposite side of the unit from the outer open end of the screw hole aligned therewith. Each screw includes a socket or slotted portion at an end thereof for engagement with a driving tool which can be inserted into either the bore or the hole aligned therewith in order to tighten the screw from either side of the unit.

3,682,506

COUPLING DEVICES

Martin Francois Marcel Bruyere, 109, rue Litolff, 92 Bois-Colombes, and Henri Chatelet, 153, Avenue de Clichy, 75 Paris, both of France, assignors to Societe Nationale d'Etude et de Construction de Moteurs d'Aviation, Paris, France

Filed Feb. 10, 1971, Ser. No. 114,298
Claims priority, application France, Feb. 24, 1970, 7006561
Int. Cl. F16d 1/00
U.S. Cl. 287—108 10 Claims



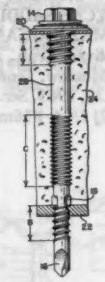
The coupling device comprises two coaxial shaft elements and a coupling sleeve. The coupling sleeve is axially locked in its coupled position by two radial bolts arranged in one of the two shaft elements and urged outwardly by a spring, each radial bolt coming into abutment against a ball which is supported against an outer ring. Such a coupling device can be applied to connect the motor with an auxiliaries coupling box.

3,682,507

THREADED FASTENER WITH STABILIZING THREADS

Cornelius Byron Waud, Lake Forest, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill.

Filed June 2, 1970, Ser. No. 42,657
Int. Cl. F16b 5/02
U.S. Cl. 287—189.36 F 3 Claims



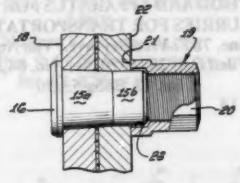
This invention relates generally to screw-type fasteners of the type adapted for use with panels comprising insulation material bounded by sheet material on one side and a thicker purlin material on the other side. The fastener includes three sections of thread convolutions. The first section is located directly beneath the head of the fastener and extends for a short axial distance. The second section is located near the drilling point of the fastener and is adapted to fasten to the thick sheet of purlin material comprising part of the panel. The intermediate or third section is utilized to prevent the fastener from falling freely through the insulating material and thus prevents possible breaking of the drilling tip or cocking of the fastener out of the perpendicular plane.

3,682,508

RE-USABLE, SPIN-STOPPING FASTENER

Franklin S. Briles, No. 6 Middle Ridge Lane, Rolling Hills, Calif.

Filed Nov. 19, 1969, Ser. No. 878,135
Int. Cl. F16b 5/02
U.S. Cl. 287—189.36 F 2 Claims



A tightenable fastening assembly capable of re-tightening, without auxiliary retention against rotation in an initially non-tapered bore formed in work structure, comprises

a. a fastener head and shank, the shank defining first, second and third sections in a lengthwise direction away from the head,

b. the second section having a uniform diameter along its length which is sufficient in relation to the bore diameter to provide slight piloting interference with the work when the fastener is inserted in the bore, the second section sized to protrude from the bore when the fastener head engages one side of the work,

c. the third section adapted to protrude from the work and being threaded to receive a nut so that the nut may engage the opposite side of the work and tighten thereagainst, and

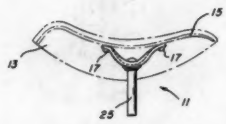
d. the first section being tapered away from the head toward the second section and being sufficiently oversized in relation to the bore diameter that frictional interference force develops to prevent rotation of the fastener shank in the hole in response to said nut tightening acting to draw said head toward said one side of the work.

3,682,509

TRUSS FOR A BICYCLE SADDLE AND METHOD OF MAKING SAME

George W. Worley, Bolivar, Tenn., assignor to Troxel Manufacturing Company, Moscow, Tenn.

Filed Dec. 29, 1969, Ser. No. 888,404
Int. Cl. B62j *1/04*; **F16m** *11/00, 11/06*
U.S. Cl. 297—195 **5 Claims**



A truss assembly for use to support a bicycle seat. The truss assembly includes a post, a bracket, an upper washer and a lower washer. The upper portion of the post extends through apertures in the washers and an elongated slot in the bracket, and the upper portion is provided with an enlarged head on the upper end thereof to hold said washers, said bracket and said post in a tight immovable relationship. The method of forming the truss includes cold working the upper portion of the post by applying a force thereto to spread the metal thereof laterally tightly against the lateral walls of the portions of said bracket defining said slot and to form an enlarged cold head on the upper end of said upper portion to tightly clamp and form an immovable assembly of said washers, said bracket and said post.

3,682,510

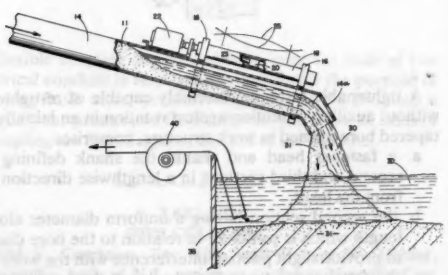
Patent Not Issued For This Number

3,682,511

SONIC METHOD AND APPARATUS FOR PROCESSING SLURRIES FOR TRANSPORTATION

Albert G. Bodine, 7877 Woodley Ave., Van Nuys, Calif.

Filed Oct. 28, 1970, Ser. No. 84,806
Int. Cl. B65g *53/30*
U.S. Cl. 302—14 **6 Claims**



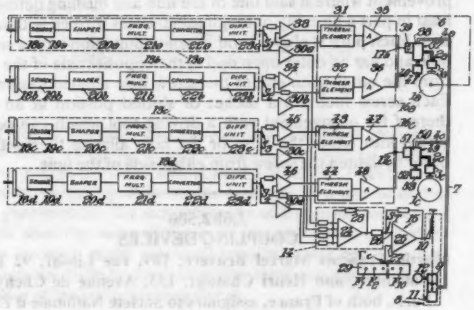
A slurry formed from particulate material and water, to facilitate handling of such material, is fed from the nozzle of a conduit into a storage compartment of a vehicle. Sonic energy generated by means of an orbiting mass oscillator is coupled to the conduit in the region of the nozzle where the velocity of flow tends to decrease with the spreading flow out of the nozzle. Sonic energy which is delivered from a resonant vibration system causes the water and particulate material to separate from each other so that they are divided in the compartment with the heavier particulate material on the bottom. The water then is pumped out of the compartment so that it is eliminated from the transportation load. The nozzle may be placed into the slurry material after most of the water has been removed to further continue the separation process so that substantially all of the water is removed. In unloading the vessel the process may be reversed with water being added to the particulate material while sonic energy is imparted thereto to re-form the slurry so that it may be readily removed from the transportation compartment.

3,682,512

MEANS FOR CONTROLLING AND REGULATING THE BRAKING OF VEHICLES

Jean Pierre Malon, Maisons Alfort, and Joseph W. Adde, Montfermeil, both of France, assignors to Compagnie des Freins et Signaux Westinghouse, Freinville-Sevran and Societe Inter-Elec, Aubervilliers, France

Filed Nov. 7, 1969, Ser. No. 874,778
Claims priority, application France, Nov. 13, 1968, 68173427
Int. Cl. B60t *8/08, 13/68*
U.S. Cl. 303—20 **10 Claims**



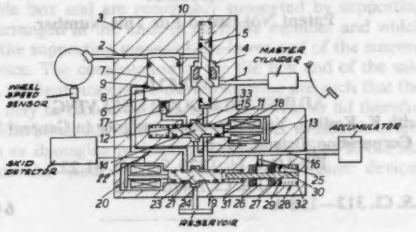
The invention relates to a system for controlling and regulating the braking of a vehicle, comprising a braking circuit common to a plurality of wheels (or sets of wheels) of the vehicle, measuring means associated with each wheel (or set of wheels) for continuously producing individual signals which are direct functions of the decelerations of said wheels (or sets of wheels) respectively, anti-locking means responsive to the last mentioned signals respectively adapted to release locally the braking exerted on those of the wheels the decelerations of which exceed a predetermined threshold, a summing unit supplied with said individual signals delivering a working signal representative of the sum of said individual signals and a comparator of the working signal and of a signal which is representarive of a preset reference deceleration for the vehicle, adapted to slave the increase or decrease in braking power applied to the vehicle through the braking circuit to the difference between the two last mentioned signals, whereby the overcoming of the locking of a wheel is compensated by an increased braking action on the other wheels and therefore does not affect the execution of a preset deceleration program for the vehicle.

3,682,513

ANTISKID BRAKE CONTROL

Heinrich Oberthur, Offenbach-Rumpenheim, Germany, assignor to ITT Industries, Inc., New York, N.Y.

Filed July 31, 1970, Ser. No. 59,974
Claims priority, application Germany, Aug. 7, 1969, P 19 40 248.3
Int. Cl. B60t 8/02
U.S. Cl. 303—21 F 8 Claims



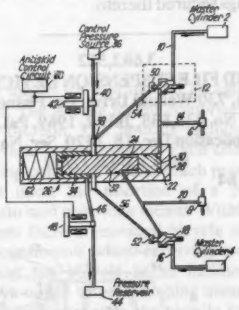
A road vehicle antiskid brake control having a separating valve for isolating the hydraulic brake line to the wheel and a pressure relief cylinder and piston connected to the brake line to increase the volume of the line and relieve the brake pressure when the separating valve is closed. The separating valve and pressure relief cylinder are interconnected hydraulically by a pair of two-position solenoid operated valves. The movement of the pressure relief piston is independent of the separating valve and is determined by the application of a controlled pressure differential across the piston.

3,682,514

ANTISKID BRAKE CONTROL SYSTEM

Heinrich Oberthur, Offenbach-Rumpenheim, Germany, assignor to ITT Industries, Inc., New York, N.Y.

Filed Aug. 4, 1970, Ser. No. 60,445
Claims priority, application Germany, Aug. 7, 1969, P 19 40 247.2; Aug. 7, 1969, P 19 40 246.1
Int. Cl. B60t 8/02
U.S. Cl. 303—21 F 25 Claims



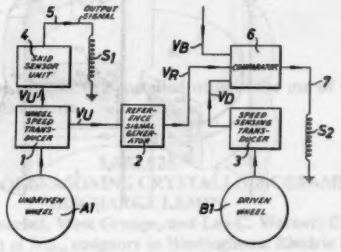
An antiskid brake control system having a hydraulically interconnected separating valve and pressure relief mechanism. The pressure relief mechanism includes a piston for overcoming a preloading spring in response to a hydraulic deceleration signal and at least one piston which is movable to relieve the brake pressure in the brake line. The separating valve assembly, which is actuated in response to the same deceleration signal as the pressure relief mechanism, isolates the brake line in response to the hydraulic deceleration signal and includes two valve bodies which are mechanically separated and which are both pressure-balanced during the rest position of the separating valve assembly. The valves are designed so that when the hydraulic deceleration signal is released the separating valve assembly will open even though the master cylinder pressure remains high.

3,682,515

ANTI-SKID SYSTEMS AND APPARATUS FOR VEHICLES

Mervyn B. Packer, and Gordon W. Judge, both of Leamington Spa, England, assignors to Automotive Products Company Limited, Leamington Spa, England

Filed Dec. 8, 1969, Ser. No. 882,872
Int. Cl. B60t 8/08, 8/12
U.S. Cl. 303—21 BE 3 Claims



An anti-skid system for vehicles in which the fluid pressure in the braking system for the application of braking torque to the wheels of the vehicle, is automatically controlled in accordance with the existence of any tendency of the vehicle towards a wheel lock or skid condition, the system providing a datum with which the speed or deceleration of the driven wheels of a vehicle can be compared in order to determine the point at which fluid pressure reducing means associated with the braking mechanism should be brought into operation to effect the necessary brake release and re-application the datum being derived from an electrical analogue of the speed of at least one undriven wheel, under the control of a simple antilock system.

3,682,516

FERRULE ASSEMBLY FOR A PUSH BROOM OR THE LIKE

Joseph Savage, 822 Mulford St., Evanston, Ill.

Filed Dec. 9, 1970, Ser. No. 96,331
Int. Cl. B25g 3/30
U.S. Cl. 306—30 1 Claim

A three-piece ferrule assembly for replacing the conventional and direct wood-to-wood threaded joint between a wooden push broom body and its associated wooden handle.

3,682,517

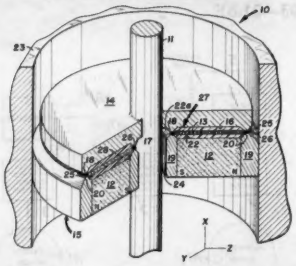
Patent Not Issued For This Number

3,682,518

MAGNETIC FLUID BEARING

David W. Rabenhorst, Silver Springs, Md., assignor to The Johns Hopkins University, Baltimore, Md.

Filed Feb. 18, 1971, Ser. No. 116,369
Int. Cl. F16c *1/24*
U.S. Cl. 308—168 11 Claims



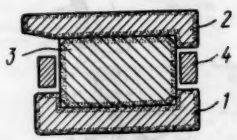
The invention comprises several related embodiments of a basic rotary thrust bearing. The present bearings provide stability in three planes, the thrust capability thereof being derived from the compressive reaction of a hermetically sealed fluid held between stationary and rotating thrust plates. Essentially, a stationary thrust plate of the present bearing comprises an annular magnet having concentric magnetically permeable pole members disposed therearound, which pole members have raised bevels at respective ends facing a rotating thrust plate. The rotating thrust plate comprises an annular plate having concentric raised bevels opposing the bevels on the stationary thrust plate, a magnetic fluid being magnetically held between the annular apices of the respective bevels for trapping a fluid within a chamber defined by the bevels.

3,682,519

ANTIFRICTION BEARING

Konstantin Zakharovich Shepelyakovsky; Boris Konstantinovich Ushakov; Vasily Petrovich Devyatkin; Vladimir Fedorovich Devyatkov; Vasily Ivanovich Shakhov; Nikolai Nikolaevich Kachkanov; Leon Alexandrovich Gazarov; Valentina Mikhailovna Pchelkina, all of Moscow; Mikhail Alexandrovich Derbunov, Kharkov, and Vladislav Valentinovich Vologdin, Leningrad, Isaak Nokhimovich Shklyarov; Veniamin Davylovich Kalner, both of Moscow, all of U.S.S.R., assingors to Moskovsky Vecherny Metallurgishesky Institut, Moscow, U.S.S.R.

Filed July 15, 1970, Ser. No. 55,100
Int. Cl. F16c *32/22*
U.S. Cl. 308—212 4 Claims



The present invention relates to the antifriction bearings used, in particular, on railway transport.

The invention consists in that the races and rolling elements of the bearing have a constant chemical composition of steel throughout their volume with a carbon content of 0.8 – 1.2 percent and have a hardened layer at least on the rolling surfaces with a hardness of 58 – 65 HRC, the depth of this layer being 0.1 – 0.3 of the wall thickness of the race, and hardened to 30 – 45 HRC.

The invention also claims a method of heat treatment of the races and rolling elements wherein surface hardening is carried out by a single through heating to temperatures above A_1 and by intensive cooling.

3,682,520

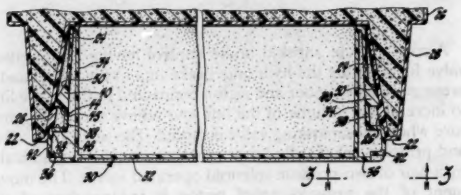
Patent Not Issued For This Number

3,682,521

ADJUSTABLE DOOR SHELVING

Keith K. Kesling, Vandalia, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed Oct. 16, 1970, Ser. No. 81,223
Int. Cl. A47b *96/02*
U.S. Cl. 312—138 A 6 Claims



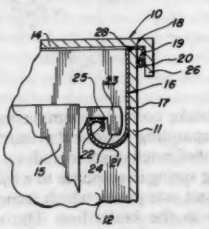
An adjustable shelf having vertical end walls with depressible tabs secured to the outer surfaces thereof, the depressible tabs in turn having retaining lugs mounted thereon. A plurality of mounting lugs are secured to cooperating fixed vertical surfaces adjacent to which the shelf is to be mounted whereby the retaining lugs engage the mounting lugs to retain the shelf in a particular position. The tabs can be molded integral with the shelf so as to be inherently biased outwardly into normal engagement with the mounting lugs. In one embodiment the retaining lugs comprise a cam surface allowing the shelf to be vertically adjusted upwardly without depressing the tabs. In all embodiments, however, it is necessary to depress the tabs to withdraw the shelf from the fixed supporting structure having the mounting lugs secured thereto.

3,682,522

FILE BOX AND FILE SUSPENSION DEVICE THEREFOR

Robert E. Splan, 730 Waikiki Drive, Des Plaines, Ill.

Division of Ser. No. 838,538, July 2, 1969, Pat. No. 3,614,185.
This application Dec. 18, 1970, Ser. No. 99,454
Int. Cl. B42f *17/00*
U.S. Cl. 312—184 1 Claim



A file box and flexible, resilient suspension device therefor in which the flexible, resilient suspension device includes a body portion which is disposed adjacent the inner surface of a

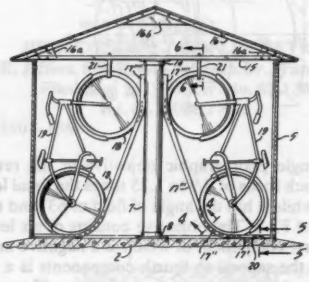
side wall of the file box and has flexible, resilient clamping means at its upper end which extends laterally from the said body portion at the outer side thereof and is removably mounted in clamping engagement on and with the upper end portion of a side wall of the file box. The body of the flexible suspension device extends from end to end of the side wall of the file box and has file-supporting means in the form of an inturned supporting arm or flange at its lower end and extending laterally from the said body portion on the inner side thereof. The file members are arranged in vertical parallel relationship in the file box and are removably supported by supporting means arranged at the ends of each file member and which rest on the supporting means at the lower end of the suspension device. The construction of the file box and of the said flexible, resilient suspension device therefor are such that the file box may be closed by means of the cover or lid therefor and the file boxes stacked one upon another without interfering with or damaging or impinging upon the files in the file boxes or the said flexible, resilient suspension devices therefor.

3,682,523

VEHICLE STORING MEANS

John Esposito, New York, N.Y., assignor to Park-a-Bike Corp., New York, N.Y.

Filed Nov. 13, 1970, Ser. No. 89,311
Int. Cl. A47b *53/00, 77/00;* **A47f** *7/04*
U.S. Cl. 312—198 **6 Claims**



Vehicle storing means for storing and garaging vehicles in particular bicycles. The storing means comprises a base and a housing mounted thereon. The housing includes wall means dividing it into several compartments. Each compartment includes a door having coin-lock means which provide access to the compartment upon the insertion of a predetermined number of coins into said coin-lock means. Within each one of these compartments there is provided bicycle support means in the form of a continuous wheel-receiving trough member adapted to support the bicycle in an inclined or vertical parked position. An upper wheel clamping means is provided for each trough member to retain the bicycle in parked position.

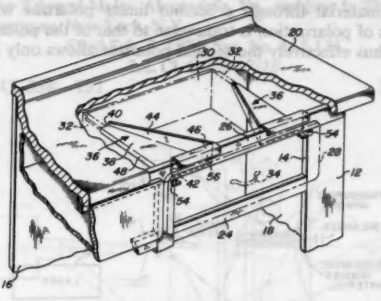
3,682,524

DRAWER SUPPORT MEANS

Louis A. Starace, 7304 Scottwood Avenue, Cincinnati, Ohio

Filed July 9, 1970, Ser. No. 53,429
Int. Cl. A47b *88/00*
U.S. Cl. 312—330 **32 Claims**

The drawer support means hooks over a horizontal rail of a cabinet front wall, and requires no other support from the cabinet walls in presenting drawer guides capable of supporting a drawer or the like for sliding movement through a front opening of the cabinet. It is installed without the use of tools or customary fasteners.

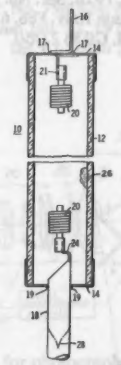


3,682,525

METHOD OF SEASONING CRYSTALLINE CERAMIC DISCHARGE LAMPS

William J. Knochel, West Orange, and Leo C. Werner, Cedar Grove, both of N.J., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed June 26, 1970, Ser. No. 50,180
Int. Cl. H01j *9/00*
U.S. Cl. 316—26 **5 Claims**



A method of seasoning arc tubes for ceramic discharge lamps in which the arc tubes are operated at the rated wattage for the lamp for about 3 to 5 minutes and the power input is thereafter increased to from 2 to 3 times the rated wattage of the lamp and the arc tubes are operated at this high wattage for a period of from 2 to 3 minutes to thereby stabilize the voltage, and increase the lumen output and lumen maintenance.

3,682,526

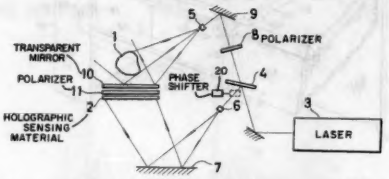
HOLOGRAPHY WITH BLOCKED UNMODULATED OBJECT BEAM LIGHT

Kazuya Matsumoto, Kanagawa-ken, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Aug. 19, 1970, Ser. No. 65,230
Claims priority, application Japan, Aug. 25, 1969, 44/67020
Int. Cl. G02b *27/00*
U.S. Cl. 350—3.5 **15 Claims**

In the method and apparatus disclosed, a laser, a beam splitter, and one polarizer form two beams one of which is

linearly polarized. The polarized beam is directed onto an object to be recorded so that the object depolarizes the light striking it, the depolarized light is sensed with a holographic sensing material through a second linear polarizer whose direction of polarization is transverse to that of the polarized beam. Thus effectively the second polarizer allows only light



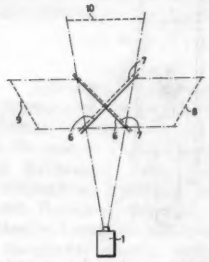
that has struck the object to reach the material. The second beam is directed to the other side of the sensing material. A mirror deflects part of the polarized light that does not strike the object back onto the shaded portions of the object. This reflected light is also depolarized by the object and sensed through the second polarizer.

3,682,527

COMPOSITE SCREEN FOR LUMINOUS PROJECTIONS WITH A THREE DIMENSIONAL EFFECT

Maria Marinelli Pirelli, Via Campi d'Oro, 40, Varese, Italy

Filed Jan. 15, 1970, Ser. No. 2,986
Claims priority, application Italy, Feb. 6, 1969, 12550A/69
Int. Cl. G03b *21/60*
U.S. Cl. 350—123 **4 Claims**



A composite screen to be used in combination with a light projector comprises a plurality of screen elements at least one of which has a discontinuous or perforated light diffusing surface, whereby part of the light rays passes through said surface and is projected on one or more other screen elements behind it.

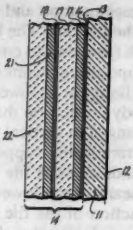
3,682,528

INFRA-RED INTERFERENCE FILTER

Joseph H. Apfel, Santa Rosa, and Robert M. Gelber, Rohnert Park, both of Calif., assignors to Optical Coating Laboratory, Inc., Santa Rosa, Calif.

Filed Sept. 10, 1970, Ser. No. 71,009
Int. Cl. G02b *5/28*
U.S. Cl. 350—1 **7 Claims**

Infra-red reflecting interference filter having a substrate capable of transmitting visible energy and having a surface with a precoat layer adherent thereto formed of a thin layer of material and a layer of silver deposited on the thin layer and



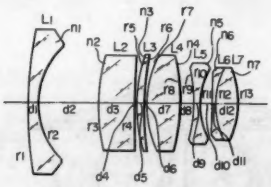
having a thickness so that it is highly transmitting of visible energy and highly reflecting of infra-red energy.

3,682,529

WIDE ANGLE PHOTOGRAPHIC OBJECTIVE OF THE RETROFOCUS TYPE

Toru Fujii, Tokyo, Japan, assignor to Olympus Optical Co. Ltd., Tokyo, Japan

Filed Jan. 20, 1971, Ser. No. 107,948
Claims priority, application Japan, Jan. 23, 1970, 45/5856
Int. Cl. G02b *9/62, 13/04*
U.S. Cl. 350—215 **2 Claims**



The wide angle photographic objective of the retrofocus type has the back focus of 0.9 to 1.25 times the focal length of the objective while it has the angle of field of 63° and the relative aperture of F2.8. The objective consists of six lens components the first component of which is a negative meniscus, while each of the second to fourth components is a positive lens element and the fifth component is a negative concavo-concave lens element, the sixth component consisting of two lens elements cemented to each other with the cemented surfaces being convex toward the object, the sixth component having a positive refractive power as a whole. In order to compensate for the aberrations, the objective satisfies the following conditions:

$$0.5|f_1|<f_2<5.0|f_1|$$

$$0.25f<d_2$$

$$0.15f<d_3<0.3f$$

$$0.5f<|r_8|<2.5f$$

$$d_9+d_{10}<0.2f$$

$$|n_6-n_7|<0.05$$

where f is the focal length of the objective and f_1, f_2 are the focal length each of the first and second components, d_2 being the air gap between the first and second components, d_3 being the thickness of the second component, r_8 being the radius of curvature of the rear surface of the fourth component, d_9 and d_{10} being the air gaps each between the fourth and fifth components and between the fifth and sixth components, n_6 and n_7 being the refractive index (d-line) of the front and rear lens elements of the six component.

3,682,530

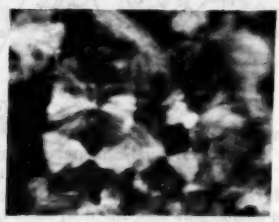
POLYMERIC REAR PROJECTION SCREENS

James J. De Palma; Edward D. Morrison, and Robert F. Williams, all of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Division of Ser. No. 838,528, July 2, 1969, which is a continuation-in-part of Ser. No. 823,233, April 2, 1969, abandoned. This application Sept. 24, 1970, Ser. No. 75,284

Int. Cl. G03b *21/56*

U.S. Cl. 350—126 2 Claims



A rear projection screen comprising a sheet of polymeric material consisting essentially of polypropylene. The sheet comprises two surface layers and a core layer containing crystalline spherulites. The core layer contains larger spherulites than the two surface layers.

3,682,531

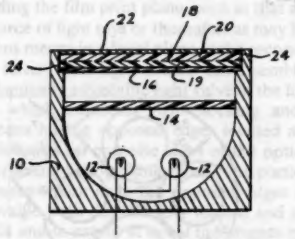
HIGH CONTRAST DISPLAY DEVICE

Andrew R. Jeffers, 819 Crestwood Hills Dr., Vandalia, Ohio

Filed Nov. 5, 1970, Ser. No. 87,156

Int. Cl. G02b *27/28*

U.S. Cl. 350—156 19 Claims



A high contrast display lens comprises a circular polarizer and a specular reflector confronting limited areas of the circular polarizer. In one embodiment, the specular reflector outlines or encloses relatively transparent character areas which are capable of conveying information. The display device is operated by a source of light which passes through the information character areas and then the circular polarizer for observation by an observer. In another embodiment the specular reflector is in the form of a foraminous screen or mesh having specularly reflective wires or mullions. The screen permits continuously varying messages such as those received from a cathode ray tube to be displayed through the foramina thereof. The specular surface in conjunction with the circular polarizer radically increases the contrast between the message and the background.

3,682,532

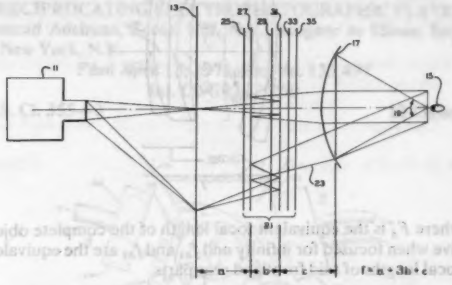
OPTICAL SYSTEM TO REDUCE IMAGE TO LENS DISTANCE BY POLARIZATION CONTROL

Walter Edward Myles, Alexandria, Va., assignor to The Singer Company, New York, N.Y.

Filed Feb. 3, 1971, Ser. No. 112,131

Int. Cl. G02b *27/28*

U.S. Cl. 350—157 3 Claims



Apparatus to reduce the real image to lens distance in an infinity image display system. By folding the optical path using an arrangement of beamsplitters and polarizers, the image to lens distance may be reduced by almost two thirds.

3,682,533

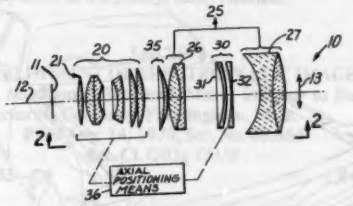
FOCUSING ANAMORPHIC OPTICAL SYSTEM

Richard H. Vetter, Pacific Palisades, Calif., assignor to United Artists Theatre Circuit, Inc., San Francisco, Calif.

Continuation of Ser. No. 798,924, Feb. 13, 1969, abandoned. This application Jan. 22, 1971, Ser. No. 109,063

Int. Cl. G02b *13/12*

U.S. Cl. 350—181 9 Claims



An optical system for photography and projection in which an anamorphosing system can be focused without astigmatism and without change in lateral compression ratio from infinity to close-ups. The system includes a master focusing lens, an anamorphosing lens of at least two sections, and an axially movable anamorphic focusing lens between the sections. The compression ratio of the anamorphosing lens and of the anamorphic focusing lens are substantially equal.

3,682,534

OBJECTIVES OF VARIABLE FOCAL LENGTH

Gordon Henry Cook, Oadby, England, and Francois Rene Laurent, Yverdon, Switzerland, assignors to The Rank Organisation Limited, London, England

Continuation-in-part of Ser. No. 830,754, June 5, 1969, abandoned. This application Jan. 8, 1971, Ser. No. 104,975

Claims priority, application Great Britain, June 6, 1968, 26,981/68

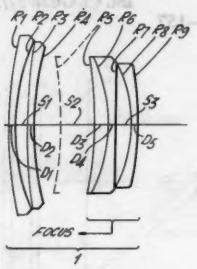
Int. Cl. G02b *15/14*

U.S. Cl. 350—186 10 Claims

A zoom lens front member which is divergent and is divided into two divergent parts, of which the rear part only is mova-

ble for focusing purposes, in accordance with the following relationships:

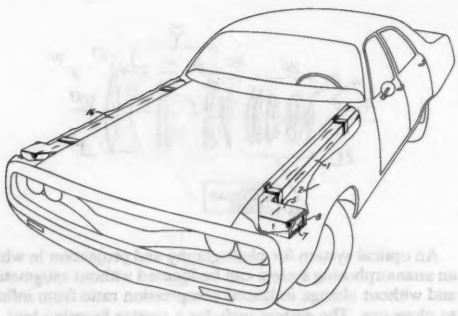
$4.2\,F_A > f_{A1} > 1.5\,F_A$
$3.0\,F_A > f_{A2} > 1.3\,F_A$
$3.0\,f_{A2} > f_{A1} > 0.6\,f_{A2}$



where F_A is the equivalent focal length of the complete objective when focused for infinity and f_{A1} and f_{A2} are the equivalent focal lengths of said front and rear parts.

3,682,535
Patent Not Issued For This Number

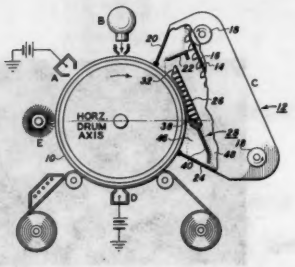
3,682,536
AUTOMOTIVE VEHICLE SIDE VIEW PERISCOPE
Larry E. Whitman, 27 Fairfield Court, Pittsburgh, Pa.
Filed July 20, 1970, Ser. No. 56,556
Int. Cl. G02b *5/08*
U.S. Cl. 350—307 **7 Claims**



The exposed side of an automotive vehicle fender has an opening therein near its front end, and the dashboard likewise has an opening in it behind the fender. A periscope tube extends from the dashboard opening forward beneath the fender to a point beside the fender opening, where the front end portion of the tube has a side opening facing the fender opening. A mirror in the front end of the tube reflects backwardly therethrough the images formed by light rays reflects backwardly therethrough the images formed by light rays entering the fender opening and striking the mirror. A ground glass that closes the dashboard opening reveals these images to the driver of the vehicle.

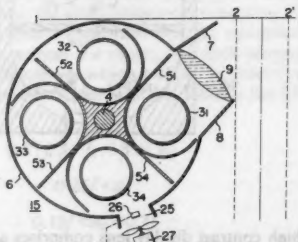
3,682,537
Patent Not Issued For This Number

3,682,538
XEROGRAPHIC PICK-OFF PLATE
Ronald L. Cade, Fairport, and Stewart W. Volkers, Williamson, both of N.Y., assignors to Xerox Corporation, Rochester, N.Y.
Continuation-in-part of Ser. No. 789,031, Dec. 31, 1968. This application March 19, 1970, Ser. No. 20,985
Int. Cl. G03g *15/08, 13/08*
U.S. Cl. 355—3 **8 Claims**



A pick-off plate is positioned adjacent a continuous xerographic surface at a point where cascading developer would normally tend to leave the xerographic surface by inertia and gravity. The developer includes toner and carrier particles and the pick-off plate isolates toner powder clouds from the xerographic surface in areas where carrier particles are not moving over the surface to clean it with a scavenging action.

3,682,539
LIGHTING APPARATUS FOR ELECTROPHOTOGRAPHIC PHOTOCOPYING MACHINE
Keizo Yamaji, Tokyo, and Takao Toryu, Chigasaki-shi, Kanagawa-ken, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Filed June 8, 1970, Ser. No. 44,382
Claims priority, application Japan, June 12, 1969, 44/46594
Int. Cl. G03g *15/00*
U.S. Cl. 355—3 **12 Claims**

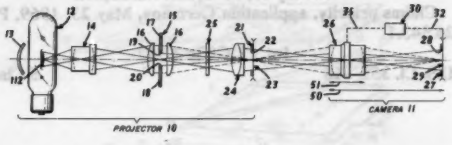


An electrophotographic photocopying machine is provided with a lighting device in which a plurality of different color lamps are carried by a common rotary body so that they may be sequentially and selectively rotated to align with a lighting or exposure position where they are turned on. Each of colored lamps has an optical shielding member supported by the common rotary body, and the colored lamps and shielding members are wholly enveloped by a housing which has an optical opening with which each opening of the shielding members is rotatably aligned in accomplishing an exposure operation.

3,682,540
PROJECTION OPTICAL PRINTING APPARATUS

John W. Oxberry, New Rochelle, N.Y.; Werner K. Bender, Carlisle, Mass., and Stanislaw A. Policht, Closter, N.J., assignors to Berkey Photo Inc., New York, N.Y.

Filed March 10, 1969, Ser. No. 805,689
Int. Cl. G03b 27/46
U.S. Cl. 355—18 18 Claims



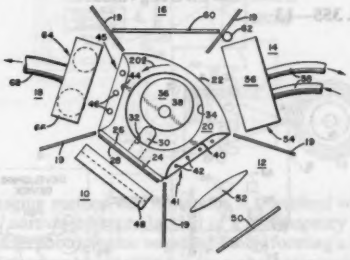
Projection optical printing apparatus which may be employed for variable enlargement and reduction of a projected image to which light sensitive material is exposed. The optical system of this apparatus comprises, in succession along the optical axis a light beam path, the following optical elements including an apertured support for a film print, e.g., a projector head film gate. This film print bears an image to be recorded with this support extending in a print plane transversely of and substantially normal to the optical axis with the latter extending substantially through the center of the support aperture. This film print support is followed by a printing lens substantially axially aligned with the optical axis, and, thereafter, a transversely extending support for light sensitive material, e.g., a camera film gate, through the center of which the optical axis extends and located at a plane of printing reproductions by the printing lens. Suitable mechanism is provided to translate along the optical axis one or more of these units, i.e., the light sensitive material support, the printing lens and the film print support relative to the others thereof. An improved light source sub-assembly is embodied in such apparatus at a position preceding the film print support or projector film gate. This light source sub-assembly includes a source of light rays to which the light sensitive material responds for recording thereon a replica of the projected image, and means providing in a transverse plane an in-focus image of the light source preceding the film print plane, such as that at the location of the source of light rays or thereafter as may be effected by focusing lens means in a focal plane at the second principal focus of the latter. This light source sub-assembly also includes a mechanically adjustable light valve in the light source image plane which embodies light-blocking and masking transverse means having opposed edges located at substantially equal distances on opposite sides of the optical axis to define an intervening light-passing space. The portions of this light valve means which have the opposed edges are simultaneously movable both directionally toward and away from the optical axis and in extent at equal increments of continuous motion for infinite variability of the intervening light-passing space.

For automatic adjustment of the opening of the light source valve a servomotor system may be provided advantageously which includes light valve control means automatically to adjust the opening in the latter in response to adjustment of the camera gate along the optical axis. A sophisticated version of this servomotor system for the printer which includes the pair of projector heads may embody a first output signal generator, such as a potentiometer, which is manipulated by adjustment of the camera gate along the optical axis, light valve opening adjustment mechanism, a second output signal generator, such as another potentiometer, manipulated by the light valve adjustment mechanism, and electrical circuit means connected to the output signal generators for combining the output signals thereof to produce a circuit output signal, with the means which automatically adjusts the opening of the light valve responding to the circuit output signal. A third output signal generator, such as still another potentiometer, is manipulated by the independently adjustable transfer lens between the projector heads and the output signal therefrom is combined in the circuit means with the other output signals to provide the circuit output signal which dictates the adjustment of the light valve opening.

3,682,541
ELECTROPHOTOGRAPHIC SYSTEM EMPLOYING RECIPROCATING ELECTROPHOTOGRAPHIC PLATE

Conrad Adelman, Forest Hill, N.Y., assignor to Minos, Inc., New York, N.Y.

Filed April 13, 1971, Ser. No. 133,497
Int. Cl. G03g 15/00
U.S. Cl. 355—3 12 Claims

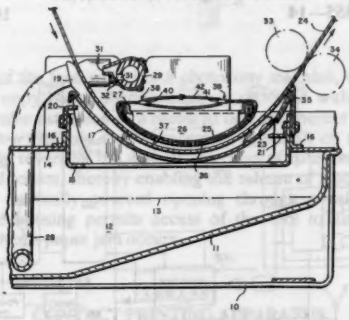


A revolving turret translates an electrophotographic plate successively to charging, imaging, development, image transfer and cleaning stations. The plate is reciprocated into operative relation with developing apparatus, a copy sheet, and cleaning apparatus at the development, image transfer and cleaning stations, respectively. The turret further mounts a corona charging unit for charging the copy sheet while the plate is being developed and a fusing unit for fusing the image on the copy sheet as the plate is being cleaned.

3,682,542
DEVELOPMENT OF ELECTROSTATIC IMAGES

Alfred K. MacKenzie, Wayland, Mass., assignor to Dennison Manufacturing Company, Framingham, Mass.

Filed Aug. 14, 1970, Ser. No. 63,884
Int. Cl. G03g 15/10
U.S. Cl. 355—10 8 Claims



An improvement in the developing means of an electrostatic copier apparatus using a liquid developer station having a pair of spaced upper and lower metallic electrodes between which the paper bearing a latent electrostatic image passes, such improvement comprising a smooth, non-metallic screen made of a low friction, low dielectric material, such as Nylon

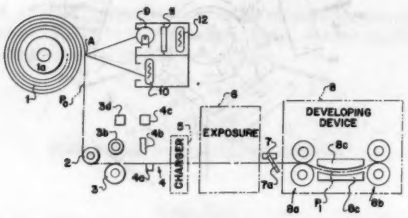
or Teflon, which screen is drawn tightly over the surface of the upper electrode which lies opposite the image bearing surface of the paper. The use of such a screen prevents any contact between the paper surface and the electrode surface and permits the distance between the upper and lower electrodes to be maintained at a relatively small value so that the image intensifying effect of the electrodes is maintained.

3,682,543

DEVICE FOR DETECTING THE END OF A ROLL OF COPY PAPER IN A PHOTOCOPYING MACHINE OR THE LIKE

Minoru Iwamoto, Tokyo, Japan, assignor to Kabushiki Kaisha Ricoh, Tokyo, Japan

Filed Jan. 21, 1970, Ser. No. 4,489
Claims priority, application Japan, Jan. 25, 1969, 44/5465
Int. Cl. G03g *15/00*
U.S. Cl. 355—13 **3 Claims**



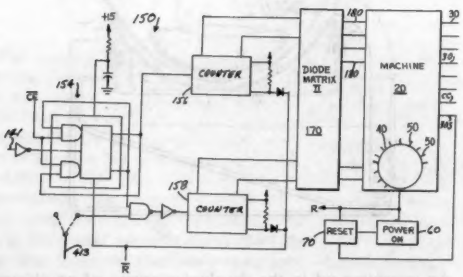
A photocopy paper feed device control circuit contains a phototransducer which measures the intensity of light reflected from the surface of a roll of stored photocopy paper and thereby detects the trailing end of a strip of paper coiled on the storage roll. Said control circuit actuates a photocopy paper feed device only when a predetermined amount of paper remains to be fed. The distance between the measuring point of the phototransducer element and a paper cutting device is greater then that between two pairs of feed rollers disposed in a section following said cutting device so that the feeding of undersized pieces of photocopy paper is prevented.

3,682,544

ELECTRONIC CONTROLLER FOR COPYING MACHINE

David Glaser, Green Brook, N.J., assignor to Burroughs Corporation, Detroit, Mich.

Filed Oct. 26, 1970, Ser. No. 83,742
Int. Cl. G03g *15/00*; G03b *27/06*
U.S. Cl. 355—14 **10 Claims**



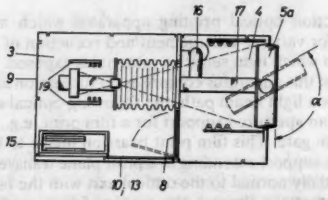
The machine controller is adapted for use with a copying machine which is adapted to perform a plurality of functions including printing copies. The controller includes various machine synchronizing circuits and, in addition, a first counter for counting copies made, a second counter for registering copies to be made, and third counter, all of the counters being interrelated to control the making of copies, detecting when the desired number of copies have been made, and turning off the machine at the end of a copying cycle.

3,682,545

REPRODUCING CAMERA

Gerhard Grimm, Munich, Germany, assignor to Fritz Geisenberger, Munich, Germany

Filed May 19, 1970, Ser. No. 38,698
Claims priority, application Germany, May 23, 1969, P 14 26 543.1
Int. Cl. G03b *27/32*
U.S. Cl. 355—18 **5 Claims**



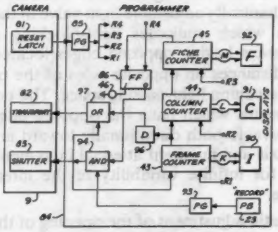
A photographic installation for microfilming large documents has two rooms accessible by an operator and interconnected by a door. The camera comprises a document holder, a lens and a photographic plate or film holder and the other the document holder but in accordance with the invention, the functions of these two holders can be reversed so that the installation can be used for re-enlarging microfilmed documents.

3,682,546

FICHE CAMERA ARRANGEMENT

Dan C. Ross, Bethesda, Md., assignor to U.S. Dynamics Inc., Elmsford, N.Y.

Filed April 23, 1971, Ser. No. 136,794
Int. Cl. G03l *27/52*
U.S. Cl. 355—40 **5 Claims**



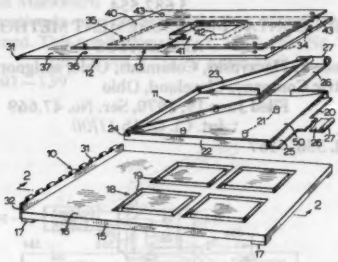
A fiche camera is described for exposing frames of a film strip which subsequently is converted to a matrix array of photographic frames on a fiche, and the camera includes a transport mechanism for advancing the film, a shutter for exposing the photographic frames of the film strip, and fiche coordinate counting means which is operated each time the shutter is operated. The fiche coordinate counting means includes a first counter which counts the frames in each column of a fiche, a second counting means responsive to the first counting means for counting the columns in a fiche, and a third counting means responsive to the second counting means which counts the number of fiches in a reel of film in a cartridge.

3,682,547

PHOTOGRAPHIC EASEL

Simon Ratowsky, Willowdale, Ontario, Canada, assignor to Monrick Holdings Limited, Ontario, Canada

Filed July 6, 1970, Ser. No. 52,435
Int. Cl. G03b 27/58
U.S. Cl. 355—74 8 Claims



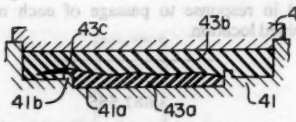
A photographic easel for printing a number of pictures on a single sheet of photographic paper, in which the paper is mounted on a carrier which slides in two mutually perpendicular directions on a platform and beneath a cover which carries a mask having a centrally located aperture. The carrier is manually operable and movable between end limits in guide means on the platform to register different portions of the paper beneath the aperture in the mask.

3,682,548

ORIGINAL HOLDER PLATE FOR COPYING MACHINES

Shigeru Suzuki, Yokohama, Japan, assignor to Kabushiki Kaisha Ricoh, Tokyo, Japan

Filed June 5, 1970, Ser. No. 43,713
Claims priority, application Japan, June 10, 1969, 44/45605
Int. Cl. G03b 27/62
U.S. Cl. 355—113 3 Claims



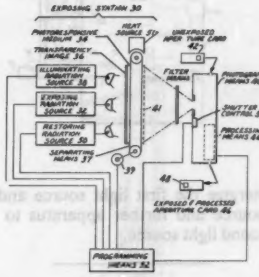
An original holder plate for copying machines and a method for preparing said plate are provided. Said original holder plate comprises a molded base having a closed projecting rim, an original holding flexible layer partitioned by said closed projecting rim, an outer flexible layer covering said layer and a molded cover further covering said outer layer. To prepare said original holder plate, a closed projecting rim is made on a molded base, rubber or synthetic resin is poured into the space divided by said closed projecting rim to form an original holding layer, other rubber or synthetic resin is poured all over said layer to form an outer layer, a molded cover is mounted to cover said outer layer, and said molded base, said two layers and said molded cover are vulcanized and casted. A handle is made at one end of said original holder plate integrally, and said original holder plate is mounted to a copying machine with two protruding shafts embedded integrally on the other end of said original holder plate.

3,682,549

IMAGING APPARATUS AND METHOD

Harvey A. Brown, East Oakdale Township, Washington County, and Robert B. Jones, Ramsey County, both of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Aug. 19, 1968, Ser. No. 753,466
Int. Cl. G03b 27/02
U.S. Cl. 355—132 15 Claims



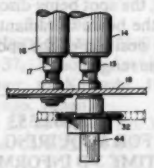
An imaging method and apparatus is described wherein a reduced, unreversed reproduction of a transparency image is produced on photographic negative film by forming a reversed image of the transparency image on a photoresponsive medium and then photographing the reversed image on photographic negative film.

3,682,550

MANUAL REVERSING DRIVE FOR PHOTOCOPY MACHINE

Abe Samuels, Chicago; Rudolph C. Mueller, Schiller Park, and Casimir C. Marzec, Chicago, all of Ill., assignors to Speed-O-Print Business Machines Corporation, Chicago, Ill.

Filed Oct. 30, 1970, Ser. No. 85,665
Int. Cl. G03b
U.S. Cl. 355—133 7 Claims



One of the feed rollers in a photocopy machine, which advances copy paper therethrough, is provided with either a noncircular extension or a recess at one end thereof engageable with a similarly shaped recess or extension on a tool for manually reversing the normal direction of rotation of all of the feed rollers, thereby enabling the release of a copy paper jam. A normally covered opening through a side of the machine housing permits access of the tool to engage the roller when a paper jam occurs.

3,682,551

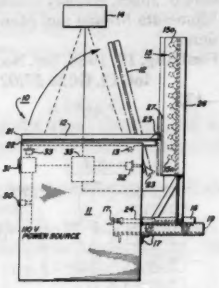
CONTACT PRINTING APPARATUS

Thomas E. Bradley, Bethlehem, and Walter Spadt, Jr., Emmaus, both of Pa., assignors to Bethlehem Steel Corporation

Filed Oct. 28, 1971, Ser. No. 193,408
Int. Cl. G03b 27/04
U.S. Cl. 355—120 6 Claims

Improved printing apparatus having a tiltable printing frame with a first light source for use when the printing frame is in a

horizontal position and a second light source for use when the printing frame is in a vertical position and apparatus to auto-



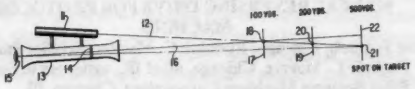
matically deenergize the first light source and energize the second light source and further apparatus to automatically position the second light source.

3,682,552

RANGE FINDER TO CONTINUOUSLY DETERMINE RANGE UTILIZING A RETICULE HAVING INDICIA

Robert B. Hartman, Bridgeport, Conn., assignor to Remington Arms Company, Inc., Bridgeport, Conn.

Filed March 12, 1968, Ser. No. 712,430
Int. Cl. G01c *3/04*
U.S. Cl. 356—3 **4 Claims**



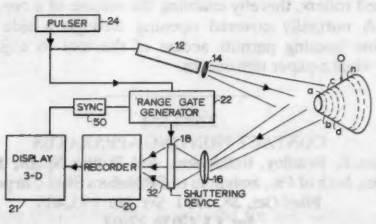
The device and method relates to a range finder which can be used in conjunction with guns, cameras and similar articles, the device employing a source of radiant energy to produce a spot on the target, the spot being discernible on a reticule, the line of sight and the beam of radiant energy being related to that the apparent position of the spot on the reticule can be used to indicate the range.

3,682,553

APPARATUS FOR ACQUIRING AND LAYING REAL TIME 3-D INFORMATION

Kapany, Narinder S., Woodside, Calif., assignor to Optics Technology, Inc., Palo Alto, Calif.

Filed Sept. 19, 1968, Ser. No. 760,896
Int. Cl. G01c *3/08*
U.S. Cl. 356—4 **7 Claims**



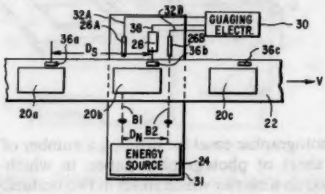
Apparatus for producing energy pulses of a sufficiently short duration that only a restricted zone of the target image is illuminated at any given instant. A gating apparatus is adapted to admit to a receiving apparatus a sequence of images from the target subject, each of which images corresponds to a different zone of the target subject. The receiving apparatus is coupled to a recording device that presents to the viewer a three-dimensional image of the target subject and that stores the image data for subsequent presentation. Several variations of the three-dimensional data acquisition and display devices are disclosed.

3,682,554

NON-CONTACT MEASUREMENT METHOD AND APPARATUS

Lawrence F. Flaczynski, Columbus, Ohio, assignor to Reliance Electric Company, Cleveland, Ohio

Filed June 19, 1970, Ser. No. 47,669
Int. Cl. G01b *11/00*
U.S. Cl. 356—167 **32 Claims**



Disclosed is a technique for non-contact measurement of objects on a moving conveyor. A light source establishes upstream and downstream light beams across the path of motion of the conveyor to define a measuring zone. Optical sensors and associated circuitry provide a dimension analog of the duration of a deviation time interval between interception of the leading edge of an object with the downstream light beam and the interception of the trailing edge of the object with the upstream light beam. Conveyor velocity analog is generated by providing a sequence of markers equally spaced along the conveyor and timing the passage of successive markers at a predetermined point. Measurement is provided in terms of the ratio of the dimension analog and the velocity analog. To facilitate measurement of transparent objects such as glass or plastic bottles, the gauging circuitry is so constructed as to be rendered inoperative except during a short gauging interval embracing the deviation time interval. A new gauging interval is initiated in response to passage of each marker at the predetermined location.

3,682,555

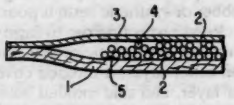
Patent Not Issued For This Number

3,682,556

GUN CLEANING PATCH

Donald M. Hanson, 4531 Ritch Haven Road, Columbus, Ga.

Filed July 6, 1970, Ser. No. 52,589
Int. Cl. F41c *31/02*
U.S. Cl. 401—132 **4 Claims**



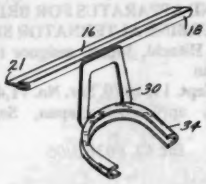
A gun cleaning patch having microencapsulated cleaning solvent or lubricating oil deposited on a cleaning cloth and af-

fixed thereto with a suitable adhesive. An overlay is provided to prevent capsule chaff from depositing in the gun barrel during the cleaning operation.

3,682,557
CLEANING APPARATUS

Sydney Simon, 936 Oramore St., Pittsburgh, Pa.; Morris Simon, 3254 Hebron Dr., Pittsburgh, Pa.; John S. Hale, Arlington, Va., and Charles J. Markward, Bethesda, Md., assignors to to said Sydney Simon and Morris Simon, by said Hale and Markward

Continuation-in-part of Ser. No. 21,461, March 20, 1970, abandoned. This application Oct. 2, 1970, Ser. No. 77,495
Int. Cl. A47l *13/26*; A46b *5/02*
U.S. Cl. 401—139 3 Claims

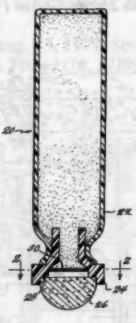


A cleaning apparatus for use with a spray dispensing receptacle comprising adapter means which are constructed to be removably secured to the dispensing receptacle. A cleaning blade and blade holder of substantially linear configuration is secured to the adapter means for squeegee cleaning of a surface area, after spray treatment from the contents of the dispensing receptacle. A preferred embodiment of the invention includes an open window structure between the adapter means and the blade holder for permitting the passage of the dispensed spray therethrough to permit both spray treatment and squeegee action with a single stroke of the apparatus.

3,682,558
SCREEN FILTER

Hobson Miller, New York, N.Y., assignor to United States Banknote Corporation, New York, N.Y.

Filed March 18, 1970, Ser. No. 20,785
Int. Cl. B65d *83/06*
U.S. Cl. 401—200 5 Claims

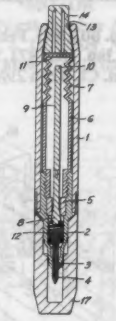


An apparatus for dispensing a powder-like mixture with a hollow tube for containing the mixture, a porous tip sealing the tube so that the material is dispensed through the tip when it is deformed by being pressed against a substantially unyielding surface and a screen mounted in the tube adjacent the tip for keeping the bulk of the mixture away from the tip and thus preventing leaking of the mixture in the region between the screen and tip when liquid material is drawn into the tip member after the tip is pressed against a wet surface.

3,682,559
EYE-LINER DEVICE

Tatsuo Hirota, 457, Kosakuda, Yashio-Machi, Saitama-gun, Japan

Filed July 22, 1970, Ser. No. 57,226
Claims priority, application Japan, July 22, 1969, 44/69066
Int. Cl. A46b *11/04*
U.S. Cl. 401—278 8 Claims

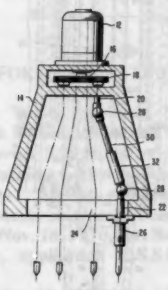


The front barrel of an eye-liner device is tightly fit to an end portion of an outer barrel. A central bore is formed at the center of the front barrel, into which bore a core or brush-type core is inserted. The core is engaged by an end of a spring positioned within the front barrel. Another end of the spring is engaged with a valve member on a knock bar. The valve member engages in a cylindrical valve seat fixed to an inside portion of the front barrel. An ink tank having bellows is connected with the back end portion of the front barrel. The outer surface of the front barrel is fixed to an inside surface of an end portion of an outside cylindrical barrel having an opening through which extends a knocking pin. Fluid ink is fed to the core by pushing the knocking pin.

3,682,560
MULTIPLE-SPINDLE DRILLING MACHINE

Kanichi Suizu, No. 9-37, 2-chome Asahigaoka, Tarumi-ku, Kobe, Japan, assignor to Kawashi Jukogyo Kabushiki Kaisha, Kobe-shi, Hyogo, Japan

Filed May 21, 1970, Ser. No. 39,406
Int. Cl. B23b *31/18*
U.S. Cl. 408—46 7 Claims



A multiple-spindle drilling machine is provided with a plurality of drilling spindle units each of which is driven from a common power supply means but which are readily adjustable longitudinally and normal to the drilling spindle axis to pro-

vide a multiplicity of drilling patterns as the plurality of units are advanced simultaneously to accomplish a drilling operation. A plurality of drilling spindle units may be adjustably mounted on a common support in a horizontal row and additional horizontal rows may be provided having the identical or different lateral spacing therebetween. The horizontal rows of spindles may be disposed parallel to each other or may be inclined relative to each other.

3,682,561

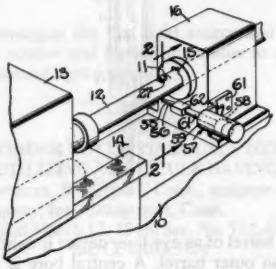
CUTTER TOOTH MOUNTING FOR FINE WEAR ADJUSTMENT

Raymond E. Lemery, and John G. Gilmore, both of c/o The Ingersoll Milling Machine Company, 707 Fulton Ave., Rockford, Ill.

Continuation of Ser. No. 802,863, Feb. 27, 1969, abandoned. This application Jan. 18, 1971, Ser. No. 107,099

Int. Cl. B23b *29/03*

U.S. Cl. 408—153 **4 Claims**



A material cutting tooth is mounted on a rotatable body and adjusted outwardly in fine increments to compensate for wear by turning a selectively rotatable screw shaft having threads of different pitch respectively mating with the body and a holder splined into the body and supporting said tooth in cutting position. Outward adjustment of the tooth is effected by turning of a disk slidably coupled to the screw shaft but held axially fixed during the outward adjustment of the tooth.

3,682,562

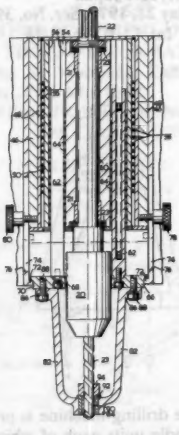
PRECISION DRILL PRESS

Guido Perrella, 205 Edgehill Road, Westmount, Quebec, Canada

Filed Dec. 10, 1969, Ser. No. 883,875

Int. Cl. B23b *47/00*

U.S. Cl. 408—234 **8 Claims**



The invention describes apparatus for providing guided motion of a machine tool along a predetermined and substantially linear path. In a preferred embodiment, the head of a drill press is manufactured as a casting having a chamber with oppositely disposed guiding surfaces machined therein to be exactly parallel to the axis of the main column of the drill press. A mounting head or quill unit is mounted for reciprocal motion in this chamber, and also has machined guiding surfaces thereon for cooperating with the corresponding surfaces in the chamber of the drill press head. Needle bearings are preferably used to mount the quill unit for reciprocal motion. Guide rods for the machine tool are movably supported on the mounting head, and these guide rods also have machined bearing surfaces for cooperating with needle bearings in which they are mounted thus accommodating reciprocal movement thereof for disabling substantially any lateral movement of the tip of the machine tool. The mounting head or quill unit and the guide rods mounted therein are preferably of rectangular cross-section.

3,682,563

METHOD AND APPARATUS FOR BRINGING A HYDRAULIC TURBINE ALTERNATOR SET ON LOAD

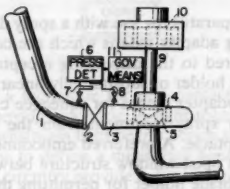
Tuneo Takashima, Hitachi, Japan, assignor to Hitachi, Ltd., Chiyoda-ku, Japan

Filed Sept. 11, 1970, Ser. No. 71,477

Claims priority, application Japan, Sept. 12, 1969, 44/72001

Int. Cl. F03b *3/06*

U.S. Cl. 415—1 **5 Claims**



During starting a hydraulic turbine alternator set as a generator, opening of the guide vanes of the turbine is controlled by a differential signal corresponding to a difference between the penstock pressure and the spiral casing pressure after the opening of the inlet valve in the penstock.

3,682,564

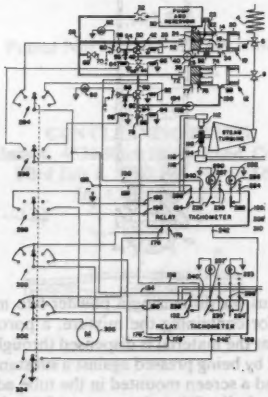
TURBINE OVERSPEED TRIP SYSTEM WITH TESTING MECHANISM

Richard L. Feeney, Langhorne, Pa., assignor to De Laval Turbine Inc., Trenton, N.J.

Filed April 26, 1971, Ser. No. 137,416

Int. Cl. F01b *25/06;* **G01m** *19/00*

U.S. Cl. 415—16 **7 Claims**



Each stop valve in a steam turbine power plant is controlled by a piston and cylinder unit. A control system is provided

which allows full movement of the stop valve under actual overspeed conditions, and which produces a simulated overspeed condition effecting only a partial closing movement of the stop valve for test purposes.

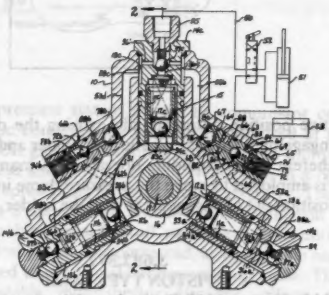
ERRATA

For Classes 415—147, 417—273, 416—90, 417—12, 417—517 see:
Patents Nos. 3,682,570, 3,682,572 through 3,682,575

3,682,565
MULTIPLE PISTON PUMP APPARATUS

Donald L. Yarger, 5118 Timber Lane, Woodstock, Ill.

Filed Aug. 31, 1970, Ser. No. 68,258
Int. Cl. F04b *27/04, 1/08*
U.S. Cl. 417—270 **8 Claims**

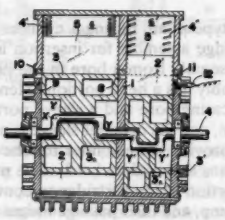


A multiple piston pump apparatus having a plurality of pump cylinders and pump pistons in the cylinders operated in successive preselected phase relation to deliver fluid from the several cylinders to a common utilization device, and in which provision is made for relieving the output of one or more of the pump cylinders as the delivery pressure builds up, to thereby deliver the combined output from the pump cylinders to the utilization device at low pressures and to reduce the volume output of the pump and hence the power required to drive the pump at relatively higher delivery pressures.

3,682,566
ROLLER PISTON TYPE ROTARY ENGINE

Eishin Nakamura, 426 Nagoya, Hidaka-Mura, Hata-gun, Kochi-ken, Japan

Filed Aug. 13, 1970, Ser. No. 63,486
Int. Cl. F01c *1/30, 11/00;* **F03c** *3/00*
U.S. Cl. 418—11 **4 Claims**

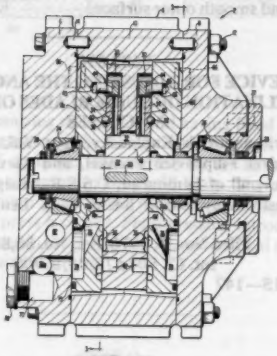


A large volume cylinder and a smaller volume cylinder are separated by a bulkhead. Extending through both cylinders is a crank shaft. Loosely mounted on the crank shaft are a larger roller piston within the large cylinder and a smaller roller piston within the smaller cylinder. The roller pistons are mounted eccentrically approximately 180° out of phase with each other. Slide plates are urged into each of the cylinders to tightly contact the outer walls of the pistons. A gap is provided between the lines of contact of the slide plates with their respective pistons. A hole communicating between the cylinders extends through the bulkhead in the area of the gap. A suction hole extends into the large cylinder on the side of the respective slide plate opposite the communicating hole, and an exhaust hole extends into the smaller cylinder on the side of the respective slide plate opposite the communicating hole.

3,682,567
LOW SPEED, HIGH TORQUE ROTARY HYDRAULIC MOTOR

Michael D'Amato, 112 North Dunbar Avenue, Waukesha, Wis.

Filed Nov. 4, 1970, Ser. No. 86,700
Int. Cl. F03c *3/00;* **F04c** *17/00*
U.S. Cl. 418—173 **17 Claims**



A hydraulic motor has a rotor with radial cylinders in which reciprocate pistons having axial ducts therethrough from end to end. The rotor is sandwiched between two stator plates which are anchored between opposite ends of a casing, but which float between the casing and the rotor sides. Flow abutments anchored to the stator plates divide an expansion chamber into three arcuate segments, beneath which the pistons retract. The rotor is driven by the force of pressure fluid fed through the duct in one piston to the expansion chamber defined between a just-passed abutment and the next-preceeding and then-extended piston. The pistons are fluid-driven, and guided by a cam slots in the stator plates.

3,682,568
Patent Not Issued For This Number

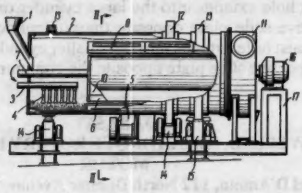
3,682,569
APPARATUS FOR GRANULATING POWDER-LIKE MATERIAL

Alexei Alexeevich Vagin, Veniamin Nikolaevich Shalygin, Viktor Ivanovich Shiborin, Vladimir Ilich Murakhver, and Nikolai Grigorievich Sharov, all of Dzerzhinsk, U.S.S.R., assignors to Dzuzkinsky filial nanchno-issledovatelskogo i Konstruktorskogo instituta Khimicheskogo instituta Khimicheskogo Mashi-nostroenia, Dzerzhinak, U.S.S.R.

Filed Nov. 18, 1970, Ser. No. 90,524
Claims priority, application U.S.S.R., Nov. 24, 1969, 1378801
Int. Cl. B29b *1/02, 1/06*
U.S. Cl. 425—78 **6 Claims**

This invention relates to methods of granulating powder-like materials and to apparatus for accomplishing these methods.

A method and apparatus according to the invention are characterized in that wet lumps, formed as a result of sprinkling a layer of powder-like material with a liquid component, in their passage on the surface of said layer are periodically



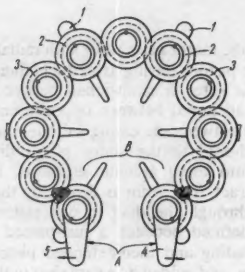
subjected to squeezing with the aid of pliable members arranged on a shaft in a container charged with powder-like material. This helps obtain more compact granules featuring a uniform and smooth outer surface.

3,682,570

DEVICE FOR ADJUSTING THE ANGLE OF INCLINATION OF GUIDE BLADES OF TURBO MACHINES

Okady Fridmanovich Kaplansky, Izya Yakovlevich Korenblit, Andrei Filiprovich Frenkel, and Alexandr Ivanovich Zakhariev, all of Leningrad, U.S.S.R., assignors to Nevsky Mashinostroitelny Zavod imeni V. J. Lenina, Leningrad, U.S.S.R.

Filed Nov. 4, 1970, Ser. No. 86,802
Int. Cl. F04d *15/00, 27/00*
U.S. Cl. 415—147 2 Claims



A device in which there is a series connection of driven elements permanently connected with the guide blades of a turbomachine in a kinematic train by means of intermediate idle elements, drive mechanism adapted to effect an independent turning of two adjacent driven elements in opposite directions, with the resulting expanding force making for the elimination of free play in the kinematic train.

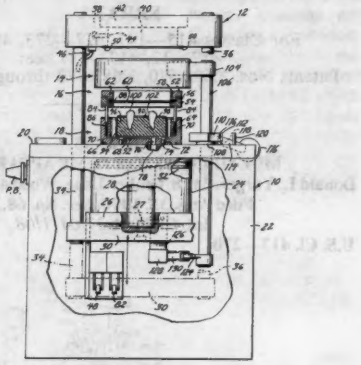
3,682,571

SEMI-AUTOMATIC APPARATUS FOR MOLDING PLASTIC COPINGS AND SIMILAR ARTICLES

Samuel Greenberg, Montgomeryville, and Abe Jacobs, Philadelphia, both of Pa., assignors to Samuel Greenberg, Montgomery County, Pa.

Filed May 28, 1970, Ser. No. 41,510
Int. Cl. B29c *17/04*
U.S. Cl. 425—193 11 Claims

Apparatus for molding or forming dental members such as waxing copings, transfer copings, full models of the teeth or mouth, teeth guards, medicament applicators and the like employing a heater movable out of an inoperative to an operative position over a plastic disk holder to soften the plastic and a pressure dome to engage the holder and force it into contact with a receptacle retaining male dies over which the softened plastic disk is draped, the movement of the heater into the in-



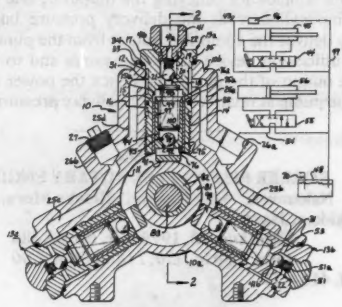
operative position automatically causing the dome to move into engagement with the plastic disk holder and to apply pressure therein for the molding operation. A manually operable valve is employed to move the pressure dome into an inoperative position out of engagement with the holder.

3,682,572

PISTON TYPE PUMP

Donald L. Yarger, 5118 Timberlane, Woodstock, Ill.

Filed July 27, 1970, Ser. No. 58,529
Int. Cl. F04b *49/00, 1/08*
U.S. Cl. 417—273 4 Claims



A piston type pump having a cylinder sleeve mounted in a pump cartridge assembly for insertion and removal with the cartridge assembly from a bore in the pump casing. The cartridge assembly has a head portion extending across the outer end of the casing bore and a sleeve portion integral with the head portion, and the cylinder sleeve is pressed into the sleeve portion to provide a wear liner for the pump piston. Outlet passage means and outlet check valve means are provided in the head portion of the cartridge to control discharge of fluid from the pump, and inlet passage means and inlet check valve means are provided in the pump piston to control intake of fluid.

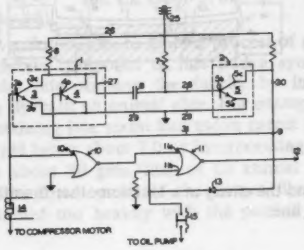
3,682,573

Patent Not Issued For This Number

3,682,574
LOW OIL PRESSURE CONTROL SYSTEM FOR COMPRESSORS

Walter J. Sanders, Jeannette, Pa., assignor to Westinghouse Air Brake Company, Wilmerding, Pa.

Filed Oct. 6, 1970, Ser. No. 78,521
Int. Cl. F04b 49/00
U.S. Cl. 417—12 7 Claims

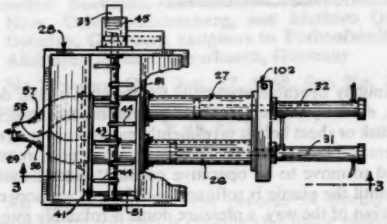


A low oil pressure system for an air compressor control wherein a logic configuration is utilized comprised of a first plurality of NOR gates representing a monostable multivibrator circuitry and another plurality of NOR gates in a NAND arrangement representing an input sensing circuitry. The protection system is operative to render and maintain said compressor inoperable when low oil pressure occurs until the cause of said low pressure is corrected, at which time manual means is utilized to render said compressor operable. The included monostable multivibrator circuitry utilizes a resistance-capacitor discharge circuitry means during manual starting of the compressor to override the said protection system while the oil pressure initially builds up during a no fault condition.

3,682,575
CONCRETE PUMP

Karl Guddal, 6221-27th N.E., Seattle, Wash., and Gunnar Guddal, 6711 5th N.W., Seattle, Wash.

Filed Dec. 10, 1970, Ser. No. 96,861
Int. Cl. F04b 7/00, 15/02; F16k 11/20
U.S. Cl. 417—517 19 Claims

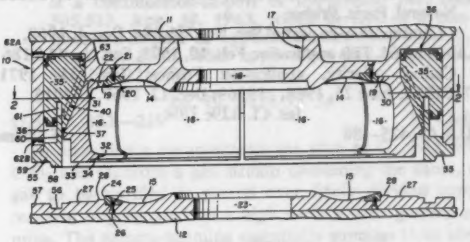


A concrete pump comprising a pair of hydraulically actuated concrete pumping cylinders, a hopper for receiving a supply of concrete to be pumped, a Y-shaped fitting including a pair of inlets and a single outlet, and a valve coacting with the concrete pumping cylinders, the hopper and the Y-shaped fitting to control the flow of concrete through the pump. The valve includes a valve body and a valve spool shiftable by a single hydraulic cylinder to alternately connect the concrete pumping cylinders to the inlets of the Y-fitting and to the hopper.

3,682,576
SEGMENTED MOLD

Werner L. Gross, Fleestedt, Germany, assignor to Akron Standard, division of Eagle-Picher Industries, Inc., Cincinnati, Ohio

Filed Feb. 10, 1971, Ser. No. 114,243
Int. Cl. B29h 5/02
U.S. Cl. 425—46 3 Claims

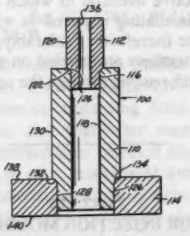


Mold for vulcanizing radial tires and having fixed and movable sidewall matrices with radially movable tread forming matrices. Tread segments are carried by an annular piston housed within a chamber in the mold body. The chamber is closed by a member guiding the piston and sealing the mold cavity when the press is closed. Fluid pressure introduced into the chamber actuates the piston for selective radial movement of the tread forming matrices.

3,682,577
COMPOSITE PUNCH FOR POWDER COMPACTING PRESS AND THE LIKE

Joseph E. Smith, Birmingham, Mich., assignor to Pentronix, Inc., Lincoln Park, Mich.

Filed Dec. 20, 1968, Ser. No. 785,584
Int. Cl. B29c 3/00
U.S. Cl. 425—78 6 Claims



A composite punch for powder compacting presses of the type preferably using a plurality of such punches in a common tool holder. The composite punch of the invention has a cylindrical body member provided with a longitudinal bore in one end of which is press-fitted a punch member. The other end of the cylindrical body member is press-fitted in a bore centrally disposed in a disk defining the portion of the composite punch for mounting in the punch holder. The three elements forming the composite punch are preferably made of a carbide materi-

al, and both the punch member and the cylindrical body member are provided with a reduced outer diameter at each end press-fitted in the other element.

3,682,578

DEVICE FOR THE CONTINUOUS MANUFACTURE OF ARTIFICIAL SPONGES

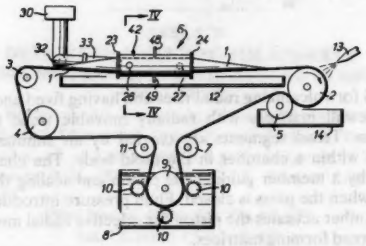
Julien Henri Lachiche, Rouen, France, assignor to Societe Novarel, Paris, France

Continuation-in-part of Ser. No. 781,094, Dec. 4, 1968, abandoned. This application Feb. 10, 1971, Ser. No. 114,186

Claims priority, application France, Jan. 21, 1971, 7101914; June 21, 1968, 155969; Dec. 12, 1967, 134015

Int. Cl. B29c *3/04*

U.S. Cl. 425—86 **15 Claims**



Device for the continuous manufacture of artificial sponges comprising a conveyor belt formed of flexible permeable material continuously passing through a passage in a fixed mold and carrying a paste formed of viscose, reinforcing material and porophorous material therethrough. Electrodes are provided in the mold for providing a current flow through the paste to coagulate it. The paste exudes a saline solution during the coagulation which passes out of the passage and is collected. Preferably the solution is collected in compartments provided adjacent to the passage and in communication therewith by a plurality of perforations in walls in the passage thereby improving current flow through the paste. These walls may be of conductive material in which case they form the electrodes or of insulating material in which case the electrodes are separate therefrom. Preferably, a plurality of pairs of pivoted form members are carried on a conveyor belt outwardly of the sheath passing through the passage.

3,682,579

APPARATUS FOR INJECTION MOLDING OF PLASTIC FOOTWEAR ARTICLES

Ladislav Hujik, Batawa, Ontario, Canada, assignor to Bata Shoe Company, Inc., Belcamp, Md.

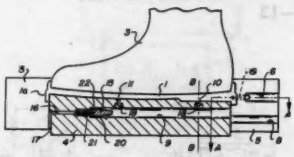
Filed Dec. 3, 1968, Ser. No. 780,746

Claims priority application Canada, Dec. 5, 1967, 006, 796; June 3, 1968, 021, 616.

Int. Cl. B29g *3/00*; B29f *1/12*

U.S. Cl. 425—129 **20 Claims**

The molding of plastic articles particularly footwear in which two mold components are capable of being closed along a parting or separating line to provide at least in part a molding cavity and which components include recesses for constituting a supply duct for the cavity when the components are closed and at least one injection port leading from one of the recesses into the cavity at a location other than the parting or separating line.



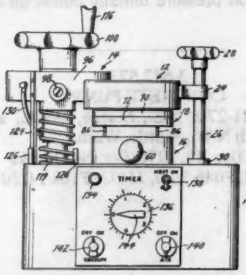
3,682,580

MANUALLY OPERABLE APPARATUS FOR MOLDING PLASTIC COPINGS AND SIMILAR ARTICLES

Samuel Greenberg, Montgomeryville, and Abe Jacobs, Philadelphia, both of Pa., assignors to Samuel Greenberg, Montgomery County, Pa.

Filed May 28, 1970, Ser. No. 41,350

U.S. Cl. 425—193 **12 Claims**



A manually operable apparatus for forming plastic dental copings, models, splints, guards, trays, and the like in which a plastic disk or sheet holder is resiliently mounted over a receptacle removably containing male dies, a heater is rotatably mounted to move to an operative position directly over the holder until the plastic is softened and then to an inoperative position out of the way, a pressure dome is rotatably mounted to move from an inoperative position out of the way to an operative position directly over the plastic disk holder and a rotatable means is provided to close the dome down on the holder and against the receptacle until the plastic is draped and formed over the male dies.

3,682,581

Patent Not Issued For This Number

3,682,582

GLUE AND DYE IN NYLON-JUTE CARPET DYEING

Julian J. Hirshfeld, Bertie J. Reuben, and Egon H. Hacklander, Decatur, Ala., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Filed May 15, 1967, Ser. No. 638,640

Int. Cl. D06p *5/00*

U.S. Cl. 8—18 3 Claims

This invention relates to a novel process of piece dyeing a carpet fabric composed of jute and a synthetic fiber, without the jute staining the fabric, by incorporating within the dyebath an animal glue. For example, a carpet fabric containing jute scrim and nylon carpet fiber can be dyed at a pH below about 7.0 by incorporating from about 0.1 up to about 50 gms./liter of an animal glue in the dyebath—the latter prevents the carpet fiber from becoming stained too heavily with the pectins in the jute.

3,682,583

PROCESS OF REMOVING POLYVINYL ALCOHOL CONTAINING SIZE

Louis Kravetz, Walnut Creek, Calif., and Gerald R. Ferrante, Edison, N.J., assignors to Shell Oil Company, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 833,295, June 19, 1969. This application May 12, 1971, Ser. No. 142,741

Int. Cl. D06l *1/14*

U.S. Cl. 8—138 4 Claims

Polyvinyl alcohol-containing size is removed from fabrics by applying a solution consisting essentially of water and hydrogen peroxide and having a pH of not greater than 9 and preferably containing a wetting agent.

3,682,584

PAD DYEING POLYESTER TEXTILE WITH POLYACRYLIC ACID HYDROXYALKYL ESTER AND ALKOXYLATED MANNICH COMPOUND OR ALKOXYLATED SULFONATED FATTY AMINE

Gunther Boehmke, Leverkusen-Grossendriesch, Walter Hees, Cologne-Hohenberg, and Mathieu Quaedvlieg, Opladen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Jan. 27, 1969, Ser. No. 794,420

Claims priority, application Germany, Feb. 2, 1968, P 19 01 411.0

Int. Cl. D06p *5/06*

U.S. Cl. 8—172 4 Claims

An improvement in the process of dyeing polyester materials by padding is obtained by using padding liquors containing an auxiliary comprising

(a) polyacrylic acid alkylene glycol ester, e.g. hydroxyethyl ester of polyacrylic acid; and

(b) alkoxylation products of Mannich compounds produced from phenols, formaldehyde and amines (b_1) or 1–2 —SO_3M— group containing alkoxylation products of fatty amines (b_2) wherein M is hydrogen, ammonium alkali metal or alkaline earth metal.

3,682,585

REMOVAL OF PARAMAGNETIC GASES

Ludo K. Frevel, Midland, and Leonard J. Kressley, Saginaw, Mich., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Continuation of application Ser. No. 703,822, Jan. 2, 1968, which is a division of application Ser. No. 572,234, Aug. 15, 1966, which is a continuation-in-part of application Ser. No. 305,513, Aug. 30, 1963, which in turn is a continuation-in-part of application Ser. No. 195,392, May 17, 1962. This application Feb. 24, 1971, Ser. No. 118,521

Int. Cl. B01d *53/34*

U.S. Cl. 423—219 10 Claims

In removing a paramagnetic gas such as O_2, NO, NO_2, ClO_2 and O_3 from a gas stream containing the same, the gas to be purified is passed over finely divided copper reactant impregnated on a high surface area gamma-alumina. The gamma-alumina essentially contains from about 0.1 to 1.5 percent by weight of sodium oxide within the alumina crystals. The copper reactant may contain up to 45 percent by weight of a metal such as silver, platinum, palladium, manganese, nickel, cobalt, chromium, molybdenum, and mixtures thereof. The gas is passed over the prepared reduced reagent within an enclosed zone while the gas and the reagent are at most any temperature above about —200° C. Removal of paramagnetic gas is particularly effective even at substantial flow rates and efficiency of removal remains surprisingly high until the reduced metal of the reagent has substantially reacted with the paramagnetic gas. When removal efficiency drops, the flow of gas to be purified is stopped or directed to another bed of reagent while the first bed is regenerated by reduction with hydrogen gas at an elevated temperature.

3,682,586

PROCESS FOR THE DETERMINATION OF CREATININE BODY FLUIDS

Gehard Ertingshausen, Easton, Conn., and Diane L. Fabiny, Mount Vernon, N.Y., assignors to Union Carbide Corporation, New York, N.Y.

No Drawing. Filed Mar. 10, 1971, Ser. No. 123,044

Int. Cl. G01n *33/16*

U.S. Cl. 23—230 B 4 Claims

An automated reaction rate method for the determination of creatinine in body fluids. The process employs reacting the creatinine-containing fluid with picrate in an alkaline solution and thereafter measuring the reaction rate within a specified time interval after the reaction commences by means of a centrifugal analytical photometer. Inasmuch as a linear relationship exists between the creatinine concentration and the initial change of absorbance, the concentration in an unknown sample can be conveniently calculated by comparison with the results obtained from the simultaneous measurement of a sample of known concentration.

3,682,587

Patent Not Issued For This Number

3,682,588
PHOSPHATE PARTICLES
Robert J. Fuchs, Clark, and Raimond Pals, Farmingdale, N.J., assignors to FMC Corporation, New York, N.Y.
No Drawing. Continuation-in-part of application Ser. No. 743,279, July 9, 1968. This application July 21, 1970, Ser. No. 56,978
Int. Cl. C01b 25/30
U.S. Cl. 423—315 17 Claims

Particles of condensed phosphates of controlled density (either high or low) are produced by passing a dry, finely powdered sodium orthophosphate through a flame or other high temperature radiant heat zone. Solid or hollow beads, of controlled size much larger than that of the feed particles are formed.

3,682,589
SORBATE EXTRACTION OF METALLIC VALUES FROM AQUEOUS LEACH SOLUTIONS
Raymond H. Moore, Kennewick, Wash., assignor to The Bunker Hill Company, Kellogg, Idaho
No Drawing. Filed Nov. 10, 1969, Ser. No. 875,584
Int. Cl. C01g 9/06
U.S. Cl. 423—24 3 Claims

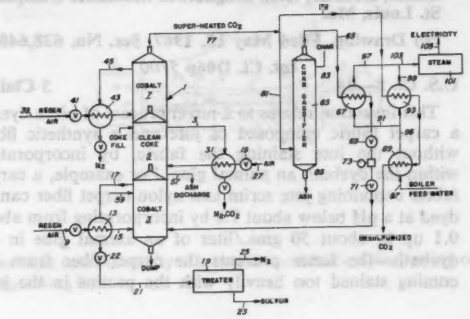
A process for removing metallic impurities such as copper, cobalt, nickel and iron from a clarified leach zinc sulfate solution in the preparation of a zinc sulfate electrolyte for the electrolytic recovery of zinc and the selective recovery of the removed metallic impurities. A selective organic ion exchange extractant is sorbed onto a bed of activated carbon to form a sorbate bed that is selective to one or more of the metallic impurities from the solution and onto the sorbate. The metallic impurities are recovered from the sorbate bed with an appropriate eluate.

3,682,590
METHOD OF FORMING BORIC ACID
Arsdel L. Fluesmeier, Miami, Okla., assignor to Eagle-Picher Industries, Inc., Cincinnati, Ohio
No Drawing. Filed June 6, 1969, Ser. No. 831,241
Int. Cl. C01b 35/00
U.S. Cl. 423—283 7 Claims

A method of forming boric acid from dimethyl ether boron trifluoride complex comprising the steps of (a) reacting together a mixture of the complex and an inorganic lithium compound having an anion selected from the group consisting of hydroxyl, carbonate and sulfate in the presence of water, the reaction resulting in reaction products that at least include lithium fluoride, dimethyl, dimethyl ether and a water solution of boric acid, and (b) separating the boric acid from the water and from all other reaction products.

3,682,591
GASIFIER AND DESULFURIZER
Lawrence E. Leas, Simi, Calif., and Robert L. Leas and Cecil J. Johnson, Columbia City, Ind., assignors to Leas Brothers Development Corporation, Columbia City, Ind.
Filed Jan. 12, 1970, Ser. No. 2,452
Int. Cl. C10j 3/04; C01b 31/20
U.S. Cl. 423—437 6 Claims

The present invention relates to methods and apparatus for gasifying and desulfurizing char, coke and/or coal by the use of cobalt or similar reactive oxides with the use of air as the regenerative fluid. The methods generate superheated carbon dioxide which in turn gasifies carbon to carbon monoxide. The higher oxide cobalt absorbs (chemically combines) the sulfur gases on the char gasifying cycle. Air then regenerates the cobalt. The sulfur gases are removed in a concentrated stream by a novel alcohol absorbtion sulfur recovery unit. As the air is regenerating the sulfur bearing cobalt bed, it is also reheating the clean coke bed and the top cobalt bed. Excess heat is used to generate steam and electricity. The ash is removed as a separate product. The heat exchange circuits are arranged to maximize heat recovery and thermal efficiency. The process is automated to minimize operating labor costs and to improve safety.



3,682,592
TREATMENT OF WASTE HCl PICKLE LIQUOR
Geza L. Kovacs, La Grange, Va., assignor to Pori, Inc., Baltimore, Md.
No Drawing. Continuation-in-part of application Ser. No. 791,191, Jan. 14, 1969. This application July 20, 1970, Ser. No. 56,639
Int. Cl. C01b 7/08; C01g 49/06
U.S. Cl. 423—488 7 Claims

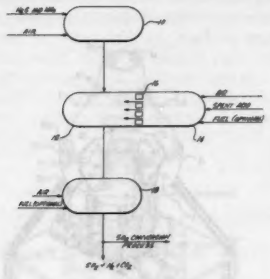
This invention is directed to the oxidation of ferrous chloride in liquid aqueous solution, such as waste HCl pickle liquor, to a solution containing ferric chloride by intimately intermingling said ferrous chloride solution with free oxygen (1) in the presence of a dissolved promoter cation selected from the class of ammonium, chromium, cobalt, copper, manganese, nickel, zinc or mixtures thereof at an elevated temperature or (2) in the absence of promoter, at superatmospheric pressure and at a temperature of at least about 175° F., for a time sufficient to obtain a ferric chloride containing solution. A mixture of ammonium ions and cupric ions is the preferred promoter.

The invention is also directed to producing hydrochloric acid from the ferric chloride solution obtained by the aforesaid oxidation process by the solution at a temperature of about 250–400° F. to obtain a HCl gas-water vapor overhead and a bottoms aqueous slurry of iron oxide.

3,682,593
METHOD OF MANUFACTURE OF SULFUR DIOXIDE FROM SULFUROUS MATERIALS CONTAINING NITROGEN COMPOUNDS
Timothy J. Browder, Jr., Los Alamitos, Calif., assignor to The Ralph M. Parsons Company, Los Angeles, Calif.
Filed Nov. 10, 1969, Ser. No. 875,270
Int. Cl. C01b 17/60, 17/56
U.S. Cl. 423—523 14 Claims

Reducing the oxides of nitrogen formed during the oxidation of a source of sulfur which contains nitrogen compounds to inert nitrogen allows contaminant-free recovery of sulfur dioxide from the process gas stream or

allows the process gas stream to be directly utilized for the production of contaminant-free derivatives of sulfur



dioxide, such as sulfur trioxide, sulfuric acid, and the sulfates.

3,682,594

PURIFICATION OF SILICON HALIDES

John G. Fish, Garland, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

No Drawing. Filed Nov. 19, 1969, Ser. No. 878,000

Int. Cl. C01b *33/08*

U.S. Cl. 423—341 **9 Claims**

Impurities such as boron and aluminum are removed from silicon halide by passing the silicon halide through an adsorbent material formed by the partial pyrolysis of polyacrylonitrile or polymethacrylonitrile. The adsorbent can be either in a particulate form or as fibers in a pressed or woven mat, for example.

3,682,595

METHOD OF PREPARING CARBONACEOUS NON-WOVEN FABRIC

Kensuke Okuda, Tadaaki Yoshida, and Kastuyuki Sugawara, Tokyo, Japan, assignors to Kureha Kagaku Kogyo Kabushiki Kaisha, Tokyo, Japan

No Drawing. Filed May 28, 1970, Ser. No. 41,545

Claims priority, application Japan, May 28, 1969, 44/40,879

Int. Cl. C01b *31/02, 31/07*

U.S. Cl. 423—447 **6 Claims**

A method of preparing a carbonaceous non-woven fabric comprising binding carbonaceous fibers using as a binder a high molecular weight material which does not pass through a pitch-like molten state during carbonizing and then carbonizing the system. The binder materials include polymers of vinylidene chloride, vinylidene fluoride, vinyl chloride, acrylonitrile and copolymers thereof, polyvinyl alcohol, phenol resin, epoxy resin, unsaturated polyester resin, furan resin and polydivinyl benzene resin.

3,682,596

BODY FLUID COLLECTOR AND SEPARATOR HAVING IMPROVED FLOW RATE

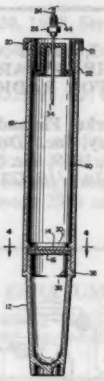
Ellery W. Stone, Cohasset, Mass., assignor to Schering Corporation, Bloomfield, N.J.

Continuation-in-part of application Ser. No. 677,196, Oct. 23, 1967. This application July 31, 1970, Ser. No. 60,044

Int. Cl. B01d *29/00;* **G01n** *33/16*

U.S. Cl. 23—253 R **8 Claims**

Diagnostic body fluid collector and analytical sample separator including an evacuated body fluid collecting tube and an evacuated analytical sample cup. The collecting tube and the sample cup are physically separated from each other by one or more selectively permeable barriers



through which only a portion of the collected fluid will pass. The assembly also includes a hollow conduit for directing body fluids into the body fluid collecting tube.

3,682,597

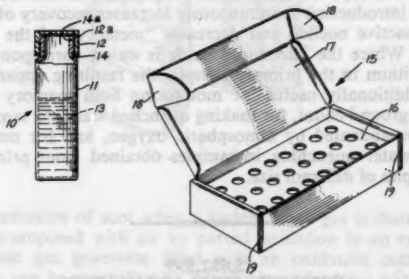
APPARATUS FOR TESTING FATTY ACIDS CONTENT IN EDIBLE OILS AND PROTECTIVE SHIPPER THEREFOR

Robert L. Husch, Chicago, Ill., assignor to Interstate Foods Corporation, Chicago, Ill.

Filed Dec. 30, 1969, Ser. No. 889,140

Int. Cl. G01n *1/10, 21/06, 33/58*

U.S. Cl. 23—259 **4 Claims**



A pre-assembled disposable test, for testing for development of excessive fatty acids in cooking oil by observing the color change of a selected amount of a volatile and flammable test solution mixed with a selected sample of hot cooking oil, is provided by the combination of a sealed test vial of glass of predetermined capacity containing a predetermined amount of test solution leaving space for a pre-selected amount of hot cooking oil to be

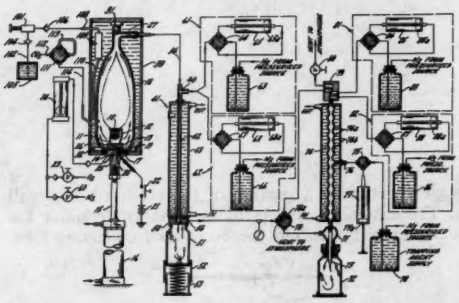
added to the level of a selected indicia defined on the vial. The glass vial conveniently provides for a gas tight seal before use, and safely accepts hot oil thereinto while conveniently permitting view of the color change. A protective shipper carton is defined by an inexpensive punched and folded cardboard blank.

3,682,598

APPARATUS FOR THE PREPARATION OF LIQUID FORM SAMPLES FOR RADIOACTIVE ISOTOPE TRACER STUDIES

Niilo H. Kaartinen, Turku, Finland, assignor to Packard Instrument Company, Inc., Downers Grove, Ill.

Filed Apr. 29, 1969, Ser. No. 820,269
Int. Cl. G01n *1/10*; G21b *17/00*
U.S. Cl. 23—262 **5 Claims**



Refinements are provided in a system for preparing liquid samples for radioactive nuclide assays. In the basic system, a primary sample containing at least one radioactive nuclide oxidizable to a recoverable gas-form oxide is oxidized, and the resulting combustion products are treated for the recovery of the radioactive nuclide oxide as a final liquid sample. Advantageously, near the beginning of the oxidation, a gas-form oxide of a non-radioactive isotope of the radioactive nuclide is introduced. This introduction simultaneously increases recovery of the radioactive nuclide and decreases "memory" of the system. Where the introduced oxide is water, corresponding to tritium in the primary sample, the resulting apparatus is additionally useful for monitoring both memory and background count, for making quenched standard samples uncontaminated by atmospheric oxygen, and for matching water quenching in samples obtained from primary samples of different size.

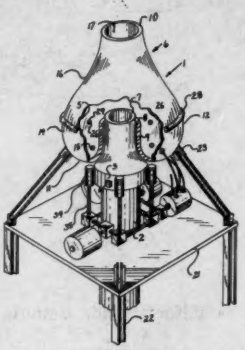
3,682,599

INCINERATION APPARATUS

Daniel B. Hewitt, 1119 N. Lynn, Independence, Mo. 64050

Filed Aug. 20, 1970, Ser. No. 65,482
Int. Cl. F23g *7/06*
U.S. Cl. 23—277 C **7 Claims**

An incineration apparatus for burning smoke or gases having unburned components therein comprises a generally upwardly extending flue member having an entrance portion positioned adjacent a structure emitting smoke or gases to thereby receive and direct the smoke or gases through a combustion chamber having a neck portion positioned above an upper end of the flue member. The combustion chamber is shaped to direct flames into the



gases within the neck portion to thereby burn the unburned components therein.

3,682,600

Patent Not Issued For This Number

3,682,601

EVAPORATION OF BRINE CRYSTALLIZING SODIUM CHLORIDE WITH FATTY ACID ADDITIVE

Joseph P. Fedosoff, Dollard des Ormeaux, Quebec, and John R. Trebish, Amherst, Nova Scotia, Canada, assignors to Domtar Limited, Montreal, Quebec, Canada

No Drawing. Filed July 31, 1970, Ser. No. 60,106
Int. Cl. B01g *17/00*; C01d *1/30*
U.S. Cl. 23—300 **5 Claims**

Evaporation of a sodium chloride brine solution containing calcium sulphate as an impurity is carried out at a temperature below 175° F. in the presence of a higher fatty acid, such as oleic acid. The sodium chloride crystals obtained in such evaporation have a very much reduced included calcium sulphate content, and the formation of calcium sulphate scale on the walls of the equipment is substantially reduced.

3,682,602

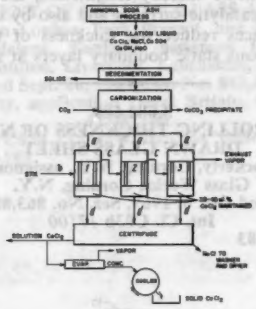
METHOD OF PRODUCING CALCIUM CHLORIDE AND SODIUM CHLORIDE

Eduard Mikhailovich Mitkevich, ulitsa Inzhenernaya 9/13, kv. 63; Vladimir Nikolaevich Korobanov, ulitsa Darvina 19, kv. 35; Vera Jurievna Babkina, ulitsa Ekonomicheskaya 1, kv. 36; Alexandra Filippovna Shakhova, ulitsa Chaikovskogo 25, kv. 23; Vladimir Nikolaevich Mefodiev, pereulok Zernovoi 6/1, kv. 101; and Nikolai Ivanovich Galdash, pereulok Zernovoi 6/1, kv. 117, all of Kharkov, U.S.S.R.

Filed Nov. 17, 1970, Ser. No. 90,266
Int. Cl. B01d *1/26, 1/00*; C01d *1/30, 3/00, 3/12*; C01f *5/30*
U.S. Cl. 23—303 **2 Claims**

Calcium and sodium chlorides are produced by evaporating the distillation liquid resulting from the ammonia soda ash production process. This liquid is clarified and introduced into the evaporators to mix with a concentrated calcium chloride solution contained therein, the concentration of calcium chloride in such a mixed solu-

tion being maintained at 28–45 wt. percent. In the process according to the method disclosed herein, steam is passed consecutively through all the evaporators of the plant.



The application of the proposed method practically precludes the formation of gypsum deposits on the heating surfaces of the evaporators.

3,682,603

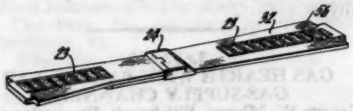
WATCH BAND AND A METHOD FOR MANUFACTURING THE SAME

Louis Pompeo, Bloomfield, N.J., assignor to Duchess Mfg. Corp., Hoboken, N.J.

Filed Feb. 3, 1971, Ser. No. 112,321

Int. Cl. B21f *43/00;* B23p *13/00*

U.S. Cl. 29—160.6 17 Claims



A wire mesh flexible watch band which is ornameted with a series of clips. The wire mesh band is first compacted or compressed along a central longitudinal stripe. The compression of the stripe functions to densify the wire mesh to that the strands thereof become tightly engaged or integrated with each other. After the stripe is formed, a series of transverse slots are made in the compressed stripe for insertion therein of the clips. The clips are U-shaped, deformable members, the ends of which are inserted in the slots and folded over on the inner face of the band. The central portions of the U-shaped members are recessed in a depression formed in the outer face of the band by the longitudinal stripe. A depression is made on the inner face of the band as well as on the outer face and the ends of the ornamental clips are recessed in the inner depression. Due to the depressions of the central stripe on both outer and inner faces, the band is relatively flat when the U-shaped members are in place.

3,682,604

MEMORY ELEMENT AND METHOD OF MAKING PROTECTIVE COATING THEREFOR

René Fernand Victor Girard and Hubert Lucien Louis Baton, Grenoble, France, assignors to Societe Industrielle Bull-General Electric (Societe Anonyme), Paris, France

Filed June 30, 1970, Ser. No. 51,194

Claims priority, application France, July 2, 1969, 6922276

Int. Cl. B32b *15/02;* C23b *5/58*

U.S. Cl. 29—193 3 Claims

An improved protective coating for a film of ferromagnetic material deposited on a conductive cylindrical substrate, wherein the coating comprises an alloy of nickel and tin containing between 29% and 37% nickel.

ERRATUM

For Class 29—196.200 see:
Patent No. 3,682,604

3,682,605

METHOD AND APPARATUS FOR SOOT CONTROLLING IN A THERMAL DECOMPOSITION OF A HYDROCARBON GAS

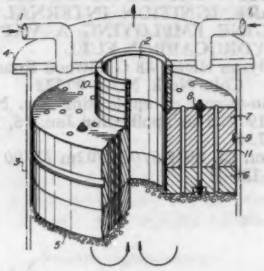
Shozo Wada, Yokohama, Japan, assignor to Tokyo Heat Treating Company, Yokohama, Japan

Filed July 14, 1970, Ser. No. 54,793

Claims priority, application Japan, July 15, 1969, 44/55,953; June 15, 1970, 45/51,807

Int. Cl. C01b *2/14;* C10g *11/10*

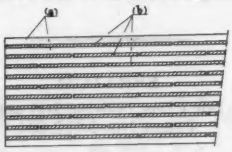
U.S. Cl. 48—107 10 Claims



Formation of soot when a hydrocarbon gas is thermally decomposed with air by partial oxidation in an endothermic gas generator filled with an oxidation catalyst layer, can be controlled by introducing a feed gas mixture of the hydrocarbon gas and air rapidly and adiabatically, without any stagnation of gas flow, into a catalyst-filled retort maintained at a retort temperature of 1,000° to 1,100° C. by heating from outside through a perforated heat-insulating block having a thickness enough to attain a heat insulation and thermally decomposing the hydrocarbon gas in the catalyst layer, while supplying heat to the catalyst layer from the outside heating source. The heat-insulating block comprises a heat-insulating brick and a refractory brick and is placed directly upon the catalyst layer without any clearance therebetween. By

providing the heat-insulating block in the generator, operation of the generator can be carried out stably for a prolonged period of time with a constant generated gas composition.

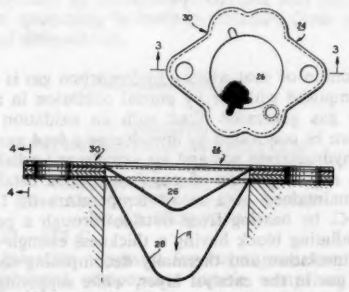
3,682,606
ALUMINUM-STEEL COMPOSITE
Eric Anderson, Geneva, Switzerland, and John Spreadborough, Windsor Berks, Grand Bretagne, England, assignors to Pechiney Ugine Kuhlmann, Paris, France
Filed Aug. 20, 1969, Ser. No. 851,612
Claims priority, application France, Aug. 22, 1968, 163,730
Int. Cl. B23p *3/02*
U.S. Cl. 29—196.2 **11 Claims**



An aluminum-steel composite and method for producing same wherein a matrix comprising at least two sheets of aluminum is internally reinforced with a plurality of layers of a plurality of thin steel strips, wherein the layers may or may not be separated by one or more sheets of aluminum, and the resulting matrix is subjected to elevated pressure to form an intermetallic bond between the sheets and the strips to provide a composite having substantially isotropic properties.

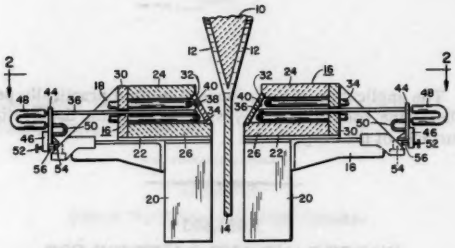
3,682,607
Patent Not Issued For This Number

3,682,608
RECOMBUSTION CATALYTIC DEVICE FOR USE IN A SPARK IGNITION INTERNAL COMBUSTION ENGINE EMPLOYING A VAPORIZABLE LIQUID HYDROCARBON FUEL
J. Byron Hicks, 48 Glenwood Road, Colts Neck, N.J. 07722
Continuation-in-part of application Ser. No. 6,858, Jan. 29, 1970. This application Jan. 15, 1971, Ser. No. 106,734
Int. Cl. B01f *3/02*; F02m *17/00*
U.S. Cl. 48—180 R **24 Claims**



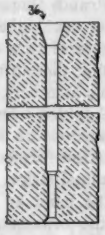
A catalytic device for preconditioning a carbureted mixture of a volatilizable hydrocarbon liquid fuel and air, the mixture to be fed to the intake of a spark ignition internal combustion engine. The catalyzer which in the prior art was carried by coarse mesh screens of planar configuration is in the instant invention carried by fine mesh wire cloths of deep dish configuration which provide longer surface contact between the mixture and the catalyzer, and create tortuous flow passages for the carbureted mixture thereby lengthening the time of exposure to the catalytic surfaces and also by scrubbing the catalytic surfaces reduce the thickness of the catalytic-impeding gaseous static boundary layers at said surfaces.

3,682,609
CONTROLLING THICKNESS OF NEWLY DRAWN GLASS SHEET
Stuart M. Dockerty, Corning, N.Y., assignor to Corning Glass Works, Corning, N.Y.
Filed Oct. 6, 1969, Ser. No. 863,885
Int. Cl. C03b *17/00*
U.S. Cl. 65—83 **10 Claims**



Variation in temperature profile across the width of newly formed glass sheet produces objectionable thickness variations which adversely effect optical quality. Precision control of the temperature profile across the width of newly drawn sheet glass is obtained through the provision of a plurality of closely spaced, individually regulated fluid control jets or tubes positioned across the width of such sheet within a closure with the exit ends of such tubes being shielded from the glass by means of a wall member having high conductivity, low expansion, and high emissivity.

3,682,610
GAS HEARTH WITH PARTICULAR GAS-SUPPLY CHANNELS
George W. Misson, Pittsburgh, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.
Continuation-in-part of application Ser. No. 631,761, Apr. 18, 1967. This application Mar. 2, 1970, Ser. No. 15,795
Int. Cl. C03b *25/02, 27/00*
U.S. Cl. 65—182 A **6 Claims**



A ceramic bed for supporting glass on a cushion of gas. The ceramic bed may be made of particles of bonded

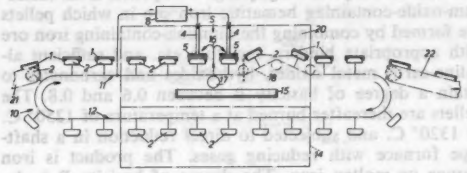
ceramic material or any suitable substance. Hot gases are fed from a supply area to the surface of the bed through channels in the ceramic bed blocks. The channels are designed to reduce or eliminate oscillation of the glass while supported on the gas over the bed.

3,682,611

TREATMENT OF HOLLOW GLASS ARTICLES

David Gordon Loukes, Park Prescot, and Jack Lawrensen, St. Helens, England, assignors to Pilkington Brothers Limited, Liverpool, Lancashire, England

Filed Sept. 26, 1969, Ser. No. 861,430
Claims priority, application Great Britain, Oct. 3, 1968, 47,067/68
Int. Cl. C03b *15/14;* B27k *3/34;* B05c *11/16*
U.S. Cl. 65—182 **5 Claims**



Hollow glass articles are treated electrolytically by seating each article on a solid electrical conductor contacting one face of the article, contacting the other face with a body of molten electrically conductive material, and passing an electric current from the molten body into the glass to cause a surface change in the article.

Glass articles are tinted by this method, in particular moulded glass articles, e.g. moulded glass half-bricks or tiles, which thereby acquire a desired colour.

3,682,612

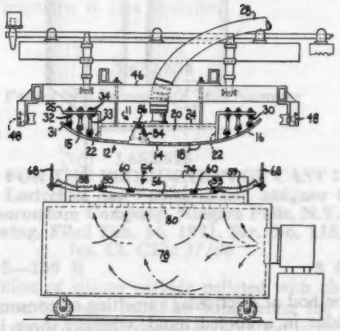
Patent Not Issued For This Number

3,682,613

APPARATUS FOR PRESS BENDING GLASS SHEETS

Randall Scott Johnson, Hollidaysburg, and Vaughn Roger Imler, Claysburg, Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Filed Oct. 15, 1970, Ser. No. 80,916
Int. Cl. C03b *23/02*
U.S. Cl. 65—289 **10 Claims**



Apparatus for bending glass sheets into nonuniform curvatures including a region of shallow curvature and at least one sharply bent region comprising a mold having an apertured shaping wall comprising a portion of shallow curvature, a closed chamber behind said portion of relatively shallow curvature and one or more sharply bent portions adjustable in shape to conform to one or more sharply bent regions to be impressed into the glass sheet.

3,682,614

SYNERGISTIC HERBICIDAL COMPOSITION FOR THE SELECTIVE CONTROL OF WEEDS IN CEREALS

Helmuth Hack, Cologne-Buchheim, Ludwig Eue, Cologne-Stammheim, and Werner Schafer, Leverkusen-Steinbuechel, Germany (all % Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany)

No Drawing. Continuation of application Ser. No. 760,680, Sept. 18, 1968. This application June 9, 1970, Ser. No. 44,875
Claims priority, application Germany, Sept. 21, 1967, P 16 42 274.5
Int. Cl. A01n *9/22*
U.S. Cl. 71—90 **12 Claims**

Synergistic combination of 1-(benzothiazol-2'-yl)-1,3-dimethyl-urea and 2-(chloro and methyl)-4-chloro-phenoxy-(acetic and α-propionic) acid salts and esters, which possesses synergistic herbicidal properties especially for the selective control of weeds in cereal cultivations.

3,682,615

Patent Not Issued For This Number

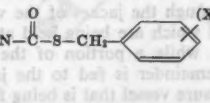
3,682,616

HERBICIDAL COMPOSITION

Ichiro Kimura, Ogasa-gun, Hironari Sugiyama, Shimizu, and Masaru Kado, Yokohama, Japan, assignors to Kumiai Chemical Industry Co., Ltd., Tokyo, Japan

No Drawing. Filed Aug. 18, 1969, Ser. No. 851,059
Claims priority, application Japan, Aug. 28, 1968, 43/61,188; Jan. 7, 1969, 44/1,176
Int. Cl. A01n *9/12*
U.S. Cl. 71—93 **9 Claims**

The herbicidal composition comprises a herbicidally effective amount of a mixture of S-benzyl-alkylthiocarbamate having the general formula



wherein R and R' are hydrogen or a lower alkyl, X is halogen or methyl group and *n* is a whole number of from 0 to 2, and 2-methylthio-4,6-bis-alkylamino-S-triazine.

3,682,617

METHOD OF COMBATING UNWANTED VEGETATION

William Carter Doyle, Jr., Leawood, Kans., assignor to Gulf Research & Development Company, Pittsburgh, Pa.

No Drawing. Filed May 7, 1970, Ser. No. 35,556
Int. Cl. A01n *9/22*
U.S. Cl. 71—94 **6 Claims**

Unwanted vegetation, particularly pigweed and noxious grasses is combated in the presence of various crops including tomatoes, peanuts, corn and soybeans by applying to the locus of the unwanted vegetation an effective amount of 1-methyl-4-(4-pyridyl)pyridinium halide. The monopyridinium halides derived from 4,4'-bipyridine are disclosed to possess greater utility as selective herbicides than the corresponding bispyridinium halides.

3,682,618

PHENYLUREAS AS PLANT GROWTH MODIFIERS

William D. Mitchell and Edward J. Soboczenski, Chadds Ford, Pa., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed July 15, 1969, Ser. No. 841,966
Int. Cl. A01n 9/20
U.S. Cl. 71—120 4 Claims

A group of phenylureas when applied to various plants at flowering result in an increase in the number and size of fruit set, thereby increasing the yield.

3,682,619

METHOD FOR AGGLOMERATING AND HARDENING METAL OXIDE PELLETS

Carl A. Holley, Glenshaw, Pa., assignor to Obenchain Corporation, Pittsburgh, Pa.

Filed Feb. 18, 1970, Ser. No. 12,275
Int. Cl. C21b 1/16; C21d 1/06
U.S. Cl. 75—3 3 Claims

An apparatus and process are provided for agglomerating and hardening moist green pellets of a metal oxide containing a cementitious binder, the hardened pellets being formed by a semicontinuous process using heat and pressure to cure the pellets. Moist green pellets containing a cementitious binder are introduced into the upper portion of a preheated inclined pressure vessel, the pellets rolling down the bottom wall of the inclined pressure vessel and the pellet surface dried. The vessel, after filling, is sealed to the atmosphere and the pellets are heated to the desired curing temperature by passing hot gases around the outside of the pressure vessel. Following a sufficient heating and curing time, the pressurized atmosphere, containing steam produced from the moisture in the pellets, is exhausted and the pellets are discharged out of an opening in the lower end of the inclined pressure vessel. Use of a plurality of such pressure vessels provides a semi-continuous process wherein while one pressure vessel is being filled with pellets, a second vessel contains pellets that are being heated to the desired curing temperature and a further pressure vessel which contains pellets that have been heated to the desired temperature is held at the curing temperature to harden the pellets therein. The pressure vessels are contained within heating jackets which are interconnected to a manifold system for circulating hot gases first through the jacket of the vessel which contains the pellets that are to be heated, then through the jacket of the vessel which contains the pellets which are being held at curing temperature, and then, while a portion of the spent gases are recycled, the remainder is fed to the jacket which surrounds the pressure vessel that is being filled with pellets, preheating the vessel and the pellets prior to being exhausted to the atmosphere.

3,682,620

PROCESS FOR THE MANUFACTURE OF PELLETS OF HIGH COMPRESSIVE STRENGTH AND ABRASION RESISTANCE

Kurt Meyer and Wilhelm Thumm, Frankfurt, Germany, assignors to Metallgesellschaft Aktiengesellschaft, Frankfurt, Germany

Filed Feb. 18, 1970, Ser. No. 12,276
Claims priority, application Germany, Feb. 22, 1969, P 19 09 037.0
Int. Cl. C21b 1/08
U.S. Cl. 75—3 11 Claims

A process for manufacturing strong pellets, i.e. pellets of high compressive strength, abrasion resistance and low expansion, for use in ore-reduction furnaces, wherein finely divided sponge iron (100%<300μ) is mixed with the iron-oxide ore or ore concentrate. The resulting pellets are fired in an atmosphere selected in accordance with the amount of elemental iron combined with the iron-oxide to yield a pelletized product having an average iron: oxygen mole ratio between 1:1 and 1:1.33.

3,682,621

METHOD OF PRODUCING SPONGE-IRON PELLETS FROM HEMATITIC ALUMINA-CONTAINING IRON ORE

Georg von Struve, Neu Isenburg, and Fred Cappel, Sprendlingen, Germany, assignors to Metallgesellschaft Aktiengesellschaft, Frankfurt, Germany

No Drawing. Filed May 4, 1970, Ser. No. 34,629
Claims priority, application Germany, May 3, 1969, P 19 22 687.0
Int. Cl. C21b 1/08
U.S. Cl. 75—3 10 Claims

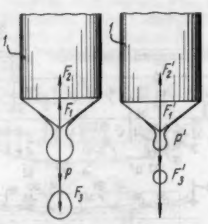
A method of producing sponge-iron pellets from aluminum-oxide-containing hematitic iron ore in which pellets are formed by combining the alumina-containing iron ore with appropriate binders, moisture etc. and sufficient alkaline-earth metal oxides, hydroxides and carbonates to attain a degree of basicity B between 0.6 and 0.8. The pellets are thereafter burned at a temperature of 1250° C. to 1320° C. and subjected to direct reduction in a shaft-type furnace with reducing gases. The product is iron sponge or molten iron. The degree of basicity B is defined as the sum of the basic oxides, hydroxides and carbonates (in molar terms) divided by the sum of the acid components including silica, silicates and silicic "acid" or oxidic compounds on the one hand and alumina and aluminates on the other.

3,682,622

METHOD OF ELECTROSLAG REMELTING OF CONSUMABLE ELECTRODES

Boris Evgenievich Paton, ul. Kotsjubinskogo 9, kv. 21; Boris Izrailevich Medovar, bulvar L. Ukrainki 2, kv. 8; Oleg Petrovich Bondarenko, ul. Kreschatik 15, kv. 34; Jury Vadimovich Latash, Vozdukhoflotsky prospekt 81, kv. 14; Vitaly Mikhailovich Baglai, ul. Semashko 10, kv. 54/3; and Vladimir Grigorievich Shirshov, ul. Vernadskogo 67, kv. 70, all of Kiev, U.S.S.R.

Continuation of application Ser. No. 644,719, June 8, 1967. This application Aug. 18, 1970, Ser. No. 64,825
Int. Cl. C22d 7/00, 7/08
U.S. Cl. 75—10 18 Claims



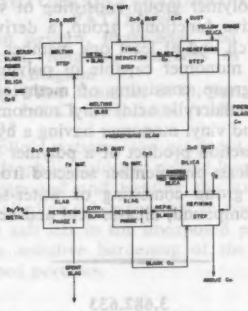
A method of electroslag remelting of consumable metal electrodes in a cooled mold, wherein short impulses of current are impressed upon the working current of an electrode, the amplitude and duration of said pulses being sufficient to effect positive breaking off of drops of the electrode metal during the formation of the drop prior to the time at which it would naturally drop.

3,682,623

COPPER REFINING PROCESS

Ludovicus Maria Dierckx, Beerse, Denis Lucian Feron, Woluwe St. Pierre, and Karel Guns, Beerse, Belgium, assignors to La Metallo-Chimique S.A., Brussels, Belgium

Filed Oct. 14, 1970, Ser. No. 80,585
Int. Cl. C22b *15/14*
U.S. Cl. 75—76 28 Claims



A process providing for the pyrometallurgical recovery of copper from copper-bearing material and isolation of lead/tin, nickel and zinc in econcmically recoverable form. Copper-bearing material is initially melted and reduced with solid material containing metallic iron to form a black copper which is refined by blowing with oxygen to oxidize metallic impurities and produce anode-grade copper. A small portion of metallic copper is oxidized in the refining step and absorbed, together with oxidized impurities, into the resulting refining slag. Copper and lead/tin are selectively and sequentially reduced from the refining slag with solid material containing metallic iron, thus producing additional black copper, which may be recycled to the refining step, and a metal rich in lead and tin. Zinc is volatilized from each step of the process and collected as zinc oxide dust, from which zinc may be readily recovered. High turbulence in each step allows rapid selective reactions at temperatures low enough to avoid substantial volatilization of lead and tin oxides. Temperatures are preferably maintained not substantially higher than the temperature at which the slags become substantially fluid. A sharp separation of copper, lead, tin and zinc into a high-grade anode copper, a rich lead/tin metal, and high-grade zinc oxide is obtained. Equipment adapted to carrying out melting, oxidation and reduction reactions is also described.

3,682,624

Patent Not Issued For This Number

3,682,625

PROCESS FOR THE PRODUCTION OF CAST IRONS

Domingos Loricchio, Sao Paulo, Brazil, assignor to The Carborundum Company, Niagara Falls, N.Y.

No Drawing. Filed Feb. 16, 1971, Ser. No. 115,694
Int. Cl. C22c *37/06*
U.S. Cl. 75—130 R 8 Claims

The addition of silicon carbide pelleted with chromite to molten iron has been found to homogenize the microstructure to control the hardness. An addition in the range of 0.10 to 1.0% silicon carbide pelleted with chromite increases the hardness of a casting. Catalytically activated silicon carbide in the range of from 0.1 to 1.5% by weight has also been found to reduce the hardness of an iron alloy. The additions are preferably made in the molten stage immediately subsequent to the exit from the furnace or cupola when casting the metal in the pan or forecrucible.

3,682,626

NIOBIUM-BASE ALLOYS

Richard T. Begley, Bridgeville, Pa., and John L. Godshall, North Tonawanda, N.Y., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Continuation-in-part of application Ser. No. 529,088, Feb. 21, 1966. This application Oct. 4, 1968, Ser. No. 777,945
Int. Cl. C22c *27/00*
U.S. Cl. 75—174 3 Claims

A niobium-base alloy is described which is characterized by high strength and creep resistance. The alloy is composed of 27% hafnium and a carbon to hafnium atomic ratio of from 0.5 to 1.25 and the balance substantially niobium with incidental impurities.

3,682,627

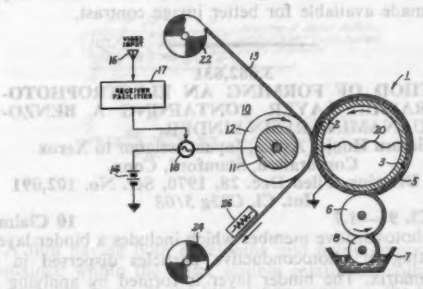
Patent Not Issued For This Number

3,682,628

PHOTOELECTROPHORETIC FACSIMILE TRANSMISSION SYSTEM

Robert W. Gundlach, Victor, N.Y., assignor to Xerox Corporation, Rochester, N.Y.

Filed Dec. 9, 1970, Ser. No. 96,513
Int. Cl. G03g *13/22*
U.S. Cl. 96—1.2 5 Claims



A method of photoelectrophoretic imaging is provided comprising:

(i) applying a layer of an imaging suspension between a pair of electrodes, at least one of which is partially transparent, said imaging suspension comprising a plurality of finely divided electrically photosensitive particles in a carrier liquid;

(ii) subjecting said suspension to an applied electric field between said electrodes having a field strength of from about 0.1 to about 1.0 volt/micron, whereby electrophoretic deposition of said particles onto the transparent electrode occurs;

(iii) paraxially scanning said transparent electrode with a source of uniform electromagnetic radiation;

(iv) applying an input electrical signal to the other electrode comprising a modulated voltage having a field strength in excess of about 10 volts/micron, whereby upon coincidence of said scanning uniform light source and said modulated voltage, photoelectrophoretic charge exchange and reverse particle migration occurs to said other electrode resulting in image formation.

3,682,629

ELECTROPHOTOGRAPHIC RECORDING PAPER FOR USE IN THE PREPARATION OF A PLANOGRAPHIC PLATE

Sakae Shimizu, Kawasaki, and Tsuguo Kimura, Tokyo, Japan, assignors to Kabushiki Kaisha Ricoh, Tokyo, Japan

Continuation-in-part of abandoned application Ser. No. 714,505, Mar. 20, 1968. This application Aug. 31, 1970, Ser. No. 68,460

Int. Cl. G03g *5/02, 13/22*

U.S. Cl. 96—1.5 6 Claims

The invention relates to an article of manufacture, a novel electrophotographic sheet material adapted for use in the preparation of a planographic plate, comprising a support sheet and a layer or sheet of photoconductive material supported thereby, the two materials having an intermediate layer or sheet positioned between them comprising a water- and alcohol-soluble resin and which has the additional property of becoming coagulated or flocculated and rendered water-insoluble upon contact with an acid solution containing metal ions having a valence of 2 or more.

3,682,630

ELECTROPHOTOGRAPHIC PRINTING ELEMENT CONTAINING CYANINE SENSITIZERS AND A MULTICOMPONENT POLYMERIC BINDER

Woo C. Park, Chicago, Ill., assignor to A. B. Dick Co., Niles, Ill.

No Drawing. Filed June 11, 1970, Ser. No. 45,577

Int. Cl. G03g *5/08, 13/22*

U.S. Cl. 96—1.6 13 Claims

An electrophotographic printing element formed of a paper base sheet having a photoconductive coating containing a cyanine compound whereby the speed can be increased, the coating weight reduced, and a whiter copy sheet made available for better image contrast.

3,682,631

METHOD OF FORMING AN ELECTROPHOTOGRAPHIC LAYER CONTAINING A BENZOGUANAMINE RESIN BINDER

Satoru Honjo, Asaka, Japan, assignor to Xerox Corporation, Stamford, Conn.

No Drawing. Filed Dec. 28, 1970, Ser. No. 102,091

Int. Cl. C03g *5/08*

U.S. Cl. 96—1.7 10 Claims

A photosensitive member which includes a binder layer consisting of photoconductive particles dispersed in a resin matrix. The binder layer is formed by applying a binder coating mixture made up of finely-divided photoconductor particles, an alkyd resin, and a methanol modified benzoguanamine resinous material to a supporting substrate to form a binder layer. The binder layer is then cured at a temperature between about 80 and 100° C. to cause a condensation reaction between the alkyd and benzoguanamine resins.

3,682,632

COPYING MATERIAL FOR USE IN ELECTROPHOTOGRAPHY

Fumiaki Arai, Tokyo, Wasaburo Ohta and Junki Kurokawa, Yokohama-shi, Kanagawa-ken, Noriyuki Usui, Kawasaki-shi, Kanagawa-ken, Sakae Shimizu, Tokyo, and Tetsuo Tanaka, Kusakabe-shi, Saitama-ken, Japan, assignors to Kabushiki Kaisha Ricoh, Tokyo, Japan

Filed June 4, 1969, Ser. No. 830,252

Claims priority, application Japan, June 14, 1968, 43/40,585; Sept. 9, 1968, 43/64,277; Oct. 2, 1968, 43/71,153; Oct. 9, 1968, 43/73,174; Oct. 12, 1968, 43/74,449

Int. Cl. G03g *5/04*

U.S. Cl. 96—1.8 1 Claim

An electrophotographic copying material having a photoconductive layer formed on the surface of a support, whose back is pre-coated with an electroconductive layer, with an intermediary layer between said photoconductive layer and the support, said intermediary layer comprising a printing-durable polymer consisting of (a) the reaction product of at least one member selected from the group consisting of a film-forming polyhydroxy compound and water-soluble protein, and glyoxal, (b) methylol starch, (c) vinyl polymer containing methylol starch, (d) the reaction product of a vinyl polymer, a polymer having urethane bonds and a water-soluble amino resin, (e) the reaction product of at least one member of the film-forming polymer group consisting of vinyl polymer having a reactive functional group, a derivative of cellulose and starch and at least one member of the ethylene-type vinyl monomer capable of polymerization and condensation group consisting of methylol acrylamide, acrylic acid, methacrylic acid, vinyl monomer having an epoxy group and vinyl monomer having a hydroxyl group and (f) the reaction product of a polymer having epoxy groups and at least one member selected from the bridge-making agent group consisting of water-soluble amino resin, amino compound, dibasic acid and acid anhydride.

3,682,633

COLOR PROOFING METHOD

John L. Curtin, White Bear Lake, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Continuation-in-part of application Ser. No. 607,728, Jan. 6, 1967. This application May 11, 1970, Ser. No. 36,134

The portion of the term of the patent subsequent to May 12, 1987, has been disclaimed

Int. Cl. G03c *5/04;* G03f *7/02;* B41m *1/00*

U.S. Cl. 96—27 8 Claims

A clear, transparent sheet suitable for accepting oleo-ink in image areas and rejecting oleo-ink in non-image areas without the need of dampeners, the non-image areas being a high abhesive layer having an adhesive release value of less than 100 grams/inch, the sheet being useful for color proofing wherein the oleo-ink to be used in the final printing job can be applied to the sheet for pre-press proofing purposes.

3,682,634

METHOD FOR DEVELOPING PHOTOGRAPHIC MATERIALS

Jozef Frans Willems, Wilrijk, Belgium, assignor to Gevaert-Agfa N.V., Mortsel, Belgium

No Drawing. Filed Sept. 22, 1970, Ser. No. 74,492

Claims priority, application Great Britain, Oct. 27, 1969, 52,568/69

Int. Cl. G03c *5/54, 5/30, 1/06*

U.S. Cl. 96—29 R 5 Claims

Photographic developing methods are described wherein an exposed silver halide emulsion layer of a photographic material is developed with an aqueous alkaline composition in the presence of a N,N-dialkylhydroxylamine developing agent and a quaternary ammonium compound having the formula

$$\dot{Q}-(CH_2)_x-(OCH_2CH_2)_{n-1}-R\Big]X^-$$

wherein

$\overset{+}{Q}$ stands for a quaternary ammonium group either cyclic or acyclic,

R stands for an alkyl group comprising from 7 to 20 C-atoms or for the group

$$\dot{Q}\Big]X^-$$

X^- is an anion,
n stands for an integer from 1 to 250, n being at least 2 when R stands for alkyl, and
x stands for 2 when n is different from 1 and for an integer from 2 to 16 when $n=1$.

The development is accelerated without adverse effects.

3,682,635
MANUFACTURE OF COLOURED COLLOID PATTERNS
Jan Frans Van Besauw, Brasschaat, and Albert Lucien Poot, Kontich, Belgium, assignors to Gevaert-Agfa N.V., Mortsel, Belgium
No Drawing. Filed June 30, 1970, Ser. No. 51,336
Int. Cl. G03c *5/00, 1/58*
U.S. Cl. 96—35 **26 Claims**

Coloured colloid patterns are produced by imagewise exposing a hydrophilic coloured colloid layer containing a diazonium compound and treating the exposed colloid layer with an alkaline substance that in conjunction with the diazonium salt left in the unexposed portions of the layer effects a selective hardening of the colloid layer in the unexposed portions.

3,682,636
PRESENSITIZED PHOTOLITHOGRAPHIC PLATE HAVING DIAZO STABILIZED ALUMINUM BASE
John W. Krueger, Rte. 1, Cottage Grove, Wis. 53527
Original application Oct. 13, 1966, Ser. No. 586,442. Divided and this application Nov. 12, 1970, Ser. No. 88,688
Int. Cl. G03c *1/52, 1/64, 1/66*
U.S. Cl. 96—75 **4 Claims**

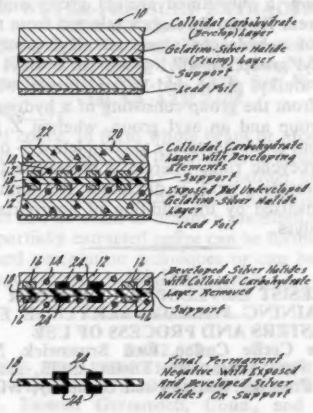
1. A diazo presensitized aluminum photolithographic printing plate consisting essentially of an aluminum base sheet and a diazo stabilized light sensitive aluminum surface formed by the combination of the diazo directly with the aluminum on the surface of the base sheet and a coating of a light sensitive, water soluble diazo resin on said diazo stabilized aluminum surface.

3,682,637
NOVEL PHOTOGRAPHIC PRODUCTS AND PROCESSES
Edwin H. Land, Cambridge, Mass., assignor to Polaroid Corporation, Cambridge, Mass.
Filed Aug. 21, 1970, Ser. No. 65,815
Int. Cl. G03c *1/48*
U.S. Cl. 96—76 **12 Claims**

Film assemblies in the nature of a self-developing film, for processing external to a camera in which the film assembly is exposed, and adapted to provide multicolor transparencies for projection, which comprise a photosensitive additive multicolor film unit including an additive multicolor optical filter screen having associated therewith photoresponsive and image-receptive materials adapted to provide a transfer image as a function of the exposure of the photoresponsive material; first and second opaque sheets adapted to enclose therebetween the additive multicolor film unit subsequent to exposure; at least one of the opaque sheets adapted to prevent exposure of successive film assemblies in a film pack containing a plurality of film assemblies for employment in such camera; container means retaining a fluid agent for reacting with the photoresponsive material to provide an image to the image-receptive material when distributed to the film unit; and means for coupling the sheets and withdrawing the sheets in superposed relationship enclosing the film unit from a film pack retained within such camera.

Subsequent to exposure in the camera, the film unit is withdrawn from the camera between pressure-applying members which effect release of the fluid agent for production of the transfer image. Subsequent to processing, the additive multicolor transparency is obtained by separation of the film unit from association with the opaque sheets acting to protect the unit during processing in the presence of radiation actinic to the photoresponsive material.

3,682,638
RADIOSENSITIVE FILM
Carl M. Kosti, 704 Foxhall Road, Bloomfield Hills, Mich. 48013
Filed Dec. 3, 1970, Ser. No. 94,856
Int. Cl. G03c *1/06, 1/48, 5/38*
U.S. Cl. 96—76 **5 Claims**



A film having both developing and fixing components contained within the water soluble gelatinous, collagenic or cellulose layers of the film. Upon exposure, the film is processed merely by contacting it with water for a few seconds. The film of this invention eliminates the requirement for developing by immersion in an aqueous alkaline solution and fixing by immersion in an aqueous acidic solution.

3,682,639
PHOTOGRAPHIC PAPER WITH POLYOLEFIN COATING
Herbert Stephen Barbehenn, James Michael Irizarry, and Gerald Martin Leszyk, all of 1669 Lake Ave., Rochester, N.Y. 14650
No Drawing. Filed Jan. 22, 1971, Ser. No. 109,000
Int. Cl. G03c *1/86*
U.S. Cl. 96—85 **6 Claims**

Improved photographic papers having a polyolefin coated paper base are disclosed. It has been found that photosensitive emulsions perform better when they are coated directly upon a layer of cellulose ester such as celluose acetate. Improved adhesion of such a 2-layer coating to polyolefin coated paper results when a layer of chlorinated polyolefin is utilized as a "sub" between the polyolefin coating (on the paper) and the cellulose ester coating (under the emulsion).

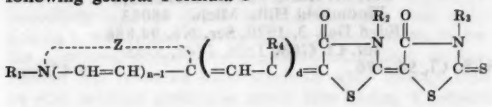
3,682,640

SPECTRALLY SENSITIZED PHOTOGRAPHIC MATERIALS SUITABLE FOR SILVER DYE BLEACHING METHOD

Keisuke Shiba, Masanao Hinata, Makoto Yoshida, Shinich Imai, Akira Sato, and Shigaru Watanabe, Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Nakanuma, Minami, Ashigara-shi, Kanagawa, Japan

No Drawing. Filed Aug. 20, 1970, Ser. No. 65,713
Claims priority, application Japan, Aug. 20, 1969, 44/65,828
Int. Cl. G03c 1/10
U.S. Cl. 96—99 14 Claims

A light-sensitive silver halide emulsion containing a dye capable of being bleached out in the silver dye bleaching process and at least one sensitizing dye having the following general Formula I



wherein R_1 is selected from the group consisting of an alkyl group, a substituted alkyl group, an allyl group, an aralkyl group, a substituted aralkyl group and an aryl group, wherein R_2 and R_3 each is selected from the group consisting of a hydrogen atom, an alkyl group, a substituted alkyl group, an allyl group, an aralkyl group, a substituted aralkyl group and an aryl group, wherein R_4 is selected from the group consisting of a hydrogen atom, an alkyl group and an aryl group, wherein Z is a non-metallic atom group necessary to complete a 5- or 6-membered heterocyclic ring, wherein *d* represents 0, 1 or 2 and *n* represents 1 or 2, is disclosed. The emulsion can be supersensitized by the addition of appropriate supersensitizing dyes.

3,682,641

PHOTORESIST DEVELOPER EXTENDER BATHS CONTAINING POLYOXYALKYLENE ETHERS AND ESTERS AND PROCESS OF USE

Nancy Lee Cecile Casler, East Brunswick, N.J., and Barbara Egee Vincentsen, Tustin, Calif., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Mar. 23, 1970, Ser. No. 22,030
Int. Cl. G03c 5/00
U.S. Cl. 96—35.1 8 Claims

Organic polymer photoresist-bearing elements are developed with a water-insoluble organic solvent developer to form a resist which is treated in a developer extender bath of a mixture of (1) a monocarboxylic acid, mono- or diester of a polyethylene glycol containing 2 to 25 OCH_2CH_2— groups, wherein the acyl radical of said ester contains 2–18 carbon atoms, and (2) a 2-alkoxyethanol, wherein alkoxy contains 2–4 carbon atoms. The novel extender baths may contain a non-ionic polyoxyethene surfactant. The bath extends the life of the developer solution and prevents formation of scum on the resist.

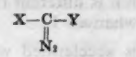
3,682,642

PHOTOPOLYMERIZATION OF ETHYLENICALLY UNSATURATED ORGANIC COMPOUNDS

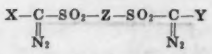
Urbain Leopold Laridon, 36 Damhertenlaan, 2610 Wilrijk, Belgium; Gerard Albert Delzenne, 40 Graaf Charles Cornetlaar, S2232 Gravenwezel, Belgium; Albert Lucien Poot, 2 Kenipnenveld, 2550 Kontich, Belgium; and Hugo Karel Peeters, 9 Graaf d'Urselstraat, 2510 Mortsel, Belgium

No Drawing. Filed Aug. 24, 1970, Ser. No. 66,588
Claims priority, application Great Britain, Nov. 11, 1969, 55,236/69
Int. Cl. G03c 1/68
U.S. Cl. 96—115 R 20 Claims

Photographic elements are described comprising a support and a light-sensitive layer containing a photopolymerizable ethylenically unsaturated organic compound and a photopolymerization initiator containing at least one diacyldiazomethane group having the formulae:



or



wherein:

each of X and Y (same or different) represents acyl groups selected from R—SO_2— and R'—CO— with R representing a phenyl group, a naphthyl group, a halogen-substituted phenyl group, an alkyl-substituted phenyl group, wherein the alkyl group comprises 1 to 12 carbon atoms, a nitro-substituted phenyl group, or a carboxyl-substituted phenyl group, wherein the carboxyl group occurs in free acid form or as an alkaline metal salt group, or as an alkyl or a phenyl ester group, and with R' representing a phenyl group, a naphthyl group, a benzofuran group, a halogen-substituted phenyl group, an alkyl-substituted phenyl group, wherein the alkyl group comprises 1 to 4 carbon atoms, an alkoxy-substituted phenyl group, wherein the alkoxy group comprises 1 to 16 carbon atoms, a nitro-substituted phenyl group, a dialkylamino-substituted phenyl group, wherein the alkyl groups comprise 1 to 4 carbon atoms, or a carboxyl-substituted phenyl group, wherein the carboxyl group occurs in free acid form or as an alkali metal salt group, or as an alkyl or a phenyl ester group, and

Z represents an alkylene group of 2 to 4 carbon atoms or a phenylene group.

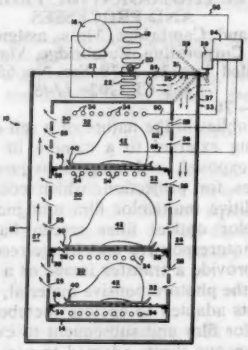
The photographic elements are highly reactive requiring only a very short exposure to actinic light.

3,682,643

METHOD FOR COOKING FOODS USING INFRARED RADIATION

Lawrence H. Foster, 11 Ogden Road, Scarsdale, N.Y. 10583

Filed July 15, 1969, Ser. No. 841,779
Int. Cl. A23l 1/00
U.S. Cl. 99—1 12 Claims



A method of cooking food from a frozen raw state to a cooked ready-to-serve state by a process of subjecting the food to controlled pulsations of infrared radiation in a controlled ambient atmosphere.

3,682,644

PROCESS FOR PREPARING MIXED FEEDS THAT CONTAIN NONPROTEIN NITROGEN

Mitsuo Nagakura, Tokyo, Japan, assignor to Telenite Co., Ltd., Tokyo, Japan

No Drawing. Filed Jan. 5, 1970, Ser. No. 836
Int. Cl. A23k *1/00, 1/12*
U.S. Cl. 99—2 R 6 Claims

Chlorinated, nitrated, nitrochlorinated and sulfonated humic and fulvic acids and salts thereof have been found to be effective growth promoting agents for livestock. Such materials are preferably obtained from the nitration, sulfonation or chlorination of lignite or peat.

3,682,645

DETOXIFICATION OF GOSSYPOL BY EUMYCOPHYTA

Thomas Colin Campbell, Blacksburg, Va., assignor to Research Corporation, New York, N.Y.

No Drawing. Filed Jan. 20, 1970, Ser. No. 4,428
Int. Cl. A23k *1/00;* A23l *1/20*
U.S. Cl. 99—9 1 Claim

Cultivation of a fungal micro-organism of the phylum Eumycophyta on cottonseed detoxifies gossypol making the cottonseed suitable for use in a feedstuff intended for monogastric animals.

3,682,646

PROCESS FOR THE MANUFACTURE OF SOY PROTEIN ISOLATES, SOY PROTEIN CONCENTRATES AND SOY BYPRODUCTS

Potito U. de Paolis, Beverly Hills, Calif., assignor to Hunt-Wesson Foods, Inc., Fullerton, Calif.

Continuation-in-part of applications Ser. No. 848,516, Aug. 8, 1969, and Ser. No. 89,829, Nov. 16, 1970. This application Mar. 24, 1971, Ser. No. 127,563
Int. Cl. A23j *1/14*
U.S. Cl. 99—17 10 Claims

A process for forming soy protein concentrates and soy protein isolates having high solubility in water and related soy products is disclosed. The process involves mixing defatted, dehulled soybean material in the form of flakes or meal in water at a temperature of between about 175° F. and 212° F. (to destroy the trypsin inhibitors, urease, etc.) and maintaining a pH of preferably between 6.8 and 9 throughout the processing. The aqueous soybean mixture is cooled to a temperature between 100° F. and 140° F. Peroxidase enzymes may be added to the aqueous soybean mixture to decompose peroxides contained therein or antioxidants may be added. The insoluble materials are then separated, from the water soluble soybean solution, and mixed with an alcohol-water solution, such as 70 percent methanol, to yield (1) insoluble soy protein and (2) semisoluble soy protein. The water soluble portion of the aqueous soybean mixture is mixed with an alcohol-water solution, such as 70 percent methanol to yield (1) soy protein concentrates and/or (2) soy protein isolates and (3) soy whey solids and sugars.

3,682,647

PRODUCTION OF HIGH PROTEIN READY-TO-EAT BREAKFAST CEREALS CONTAINING SOY AND MALT

William T. Bedenk, Springfield Township, Hamilton County, and Edward R. Purves, Forest Park, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

No Drawing. Filed June 29, 1970, Ser. No. 50,922
Int. Cl. A23l *1/10*
U.S. Cl. 99—83 24 Claims

A high protein content soy-containing ready-to-eat breakfast cereal is made palatable by first treating the soy with barley malt and water at elevated temperatures. After such a treatment the soy-malt mixture is preferably combined with a cereal grain and further processed into a breakfast food having a protein content of greater than 20% and having a pleasing taste.

3,682,648

GREEN COFFEE DECAFFEINATION USING EDIBLE ESTER SOLUTIONS

William A. Mitchell, Lincoln Park, N.J., and Robert Klose, West Nyack, N.Y., assignors to General Foods Corporation, White Plains, N.Y.

No Drawing. Filed May 27, 1970, Ser. No. 41,101
Int. Cl. A23f *1/10*
U.S. Cl. 99—70 8 Claims

Process for decaffeinating green coffee beams with solutions of esters of polyhydric alcohols and edible carboxylic acids to produce beans having residual quantities of said ester, and amounts of sugar and other non-caffeine coffee solubles substantially the same as that existing in the beans prior to decaffeination.

3,682,649

COLD WATER-PRESSURE EXTRACTION OF ROASTED COFFEE

George Orozovich, Flushing, N.Y., assignor to General Foods Corporation, White Plains, N.Y.

No Drawing. Filed Mar. 11, 1970, Ser. No. 18,749
Int. Cl. A23f *1/08*
U.S. Cl. 99—71 9 Claims

Roasted coffee, in form whole beans or ground, is contacted with cold water and the mixture is separated under pressure to obtain a quality coffee extract and partially extracted coffee which can be further processed. The coffee extract can be dried to obtain a premium soluble coffee. The partially extracted coffee can be further extracted by standard percolation techniques or can be dried and used as regular roasted and ground coffee.

3,682,650

PROCESS FOR PREPARING FROZEN COFFEE AND PRODUCT PRODUCED THEREFROM

Harry T. Easton. Greenwich, Conn., and Daniel E. Dwyer, Westbury, N.Y., assignors to General Food Corporation, White Plains, N.Y.

No Drawing. Filed May 22, 1970, Ser. No. 40,476
Int. Cl. A23f *1/08*
U.S. Cl. 99—71 8 Claims

Freeze-dried coffee having a control density and a dark color simulating roasted and ground coffee is produced by forming a slurry of ice crystals of controlled size and a mother liquor contacting these crystals having a concentration of about 40% to 50% soluble solids prior to freezing and freeze drying.

3,682,651

MICROWAVE PUFFING OF CEREAL GRAIN AND PRODUCTS MADE THEREFROM

Roy E. McAlister, 5285 Red Rock Drive, Phoenix, Ariz. 85018

Filed Mar. 11, 1969, Ser. No. 806,151
Int. Cl. A23l *1/10*
U.S. Cl. 99—83 3 Claims

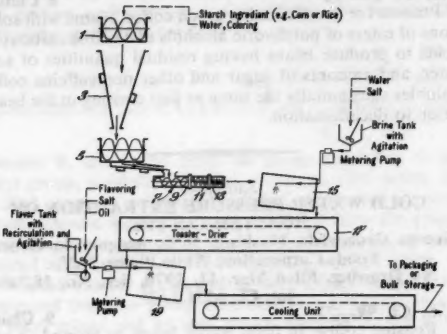
A method for producing food products and the food products produced thereby wherein unleavened cereal grain products are made by dispersing a dipolar solvent, such as water, in a medium containing cereal grains and then applying microwave energy to the medium to cause this solvent to vaporize and puff the cereal grains. The puffing may be accomplished at reduced pressure to assist the puffing, and the microwave energy can also be used to dry the food products to the desired moisture. A number of specific food products which can be produced with this process are also disclosed.

3,682,652

PROCESS FOR PREPARING A LOW CALORIE SNACK

Dennis D. Corbin, Robert F. Marquardt, and John Lester Gabby, Evansville, Ind., assignors to The Drackett Company, Cincinnati, Ohio

Filed Aug. 8, 1969, Ser. No. 848,467
Int. Cl. A23l *1/10*
U.S. Cl. 99—83 6 Claims



A process for preparing an edible, salted, extrusion-formed and expanded, cooked dough product, e.g., chips, sticks, curls, etc., in which the salt is added to the product in the form of a spray of an aqueous salt solution and the product is dried to remove the water.

3,682,653

GRAIN CONDITIONER-MODIFIER CHEMICAL COMBINATION

Richard Paul Mommer, Loveland, Colo., assignor to Loveland Industries, Inc., Loveland, Colo.

No Drawing. Filed Mar. 2, 1970, Ser. No. 15,898
Int. Cl. A23l *1/20*
U.S. Cl. 99—103 6 Claims

There is provided a grain conditioner composition for application to a mass of whole kernel grain, for preparing grain kernels in a pre-processing kernel phase thereof, consisting essentially of, in combination, a mixture of liquid lecithin, a mold-inhibitant food grade acid capable of reducing the pH of said lecithin and permitting said lecithin to become water dispersible, and water. The present invention also extends to a method for the pre-production phase conditioning of mass whole grain kernels employing the aforementioned composition as well as a liquid chemical surfactant-lubricant grain conditioner composition for use in the pre-phase preparation of grain including the aforementioned composition.

3,682,654

ARTIFICIAL FLAVORED BERRIES AND PROCESS OF PREPARING SAME

Ernest W. Johnson, Minnetonka, Minn., assignor to General Mills, Inc.

No Drawing. Filed Mar. 13, 1970, Ser. No. 19,490
Int. Cl. A23l *1/00*
U.S. Cl. 99—103 10 Claims

Artificial flavored articles or berries having liquid centers are prepared by encompassing a first solution containing flavoring and a gel setting agent by a second solution containing a hydrophilic colloid.

3,682,655

METHOD FOR COOKING MEAT

Ali R. Touba, Minneapolis, Minn., assignor to General Mills, Inc.

No Drawing. Filed Apr. 6, 1970, Ser. No. 26,066
Int. Cl. A22c *18/00*
U.S. Cl. 99—107 3 Claims

Meat is cooked under compression between a pair of heated surfaces having a temperature of between 400° F. and 600° F., said surfaces being urged against the meat with a force of between 1 and 50 p.s.i.g., said force being sufficient to provide direct heat transmitting physical contact between the meat and said heated surfaces, said force being sufficient to cause steam, formed on contact of the heated surfaces with the meat, to migrate into said meat thereby eliminating any steam layer between the meat and the heated surfaces, and said force being sufficient to compress the meat to a thickness of between 3/16 and 1/2 inch.

3,682,656

POURABLE MARGARINE

Inga Elna Maria Wilton, Stockholm, and Karl Lennart Emanuel Baurén, Ronninge, Sweden, assignors to Margarinbolaget AB, Stockholm, Sweden

No Drawing. Filed Oct. 29, 1970, Ser. No. 85,301
Claims priority, application Luxembourg, Nov. 14, 1969, 59,821/69
Int. Cl. A23d *3/00*
U.S. Cl. 99—122 13 Claims

The specification describes a pourable margarine of improved stability against phase separation, particularly at use temperature (e.g. about 18° C.) and refrigerator temperature (e.g. about 6° C.). The pourable margarine contains about 20% by weight of an aqueous phase and about 80% by weight of a fatty phase, which fatty phase contains about 92 to 99.5% by weight of a liquid vegetable oil and about 8 to 0.5% by weight of a hard fat component. The stability of the pourable margarine is further improved by the presence of about 0.5 to 20% by volume of gas bubbles, preferably nitrogen bubbles of a bubble size of 1–25 microns.

3,682,657

Patent Not Issued For This Number

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Patent Not Issued For This Number

3,682,659

MARSHMALLOW CONFECTION

Henry E. Jurczak, Chicago, and Edward S. Olney, Deerfield, Ill., assignors to Kraftoo Corporation, New York, N.Y.

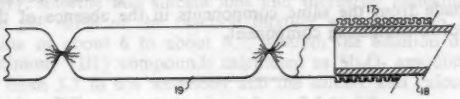
No Drawing. Filed Apr. 30, 1970, Ser. No. 33,519
Int. Cl. A23g *3/00*
U.S. Cl. 99—134 A 3 Claims

Preparing a flowable, spoonable marshmallow mix having 76–80 percent solids and a density of from about 250 to about 425 grams per pint by whipping a syrup of hydrated microcrystalline cellulose, at least one sugar and a whipping agent.

3,682,660
PROCESS FOR THE PASTEURIZATION OF EGG WHITES
Willibald F. Kohl, Nanuet, and John C. Sourby, Mount Kisco, N.Y., and Rudolph H. Ellinger, Chagrin Falls, Ohio, assignors to Stauffer Chemical Company, New York, N.Y.
No Drawing. Continuation-in-part of application Ser. No. 694,808, Jan. 2, 1968. This application May 25, 1970, Ser. No. 40,450
Int. Cl. A23b *5/00*; A23l *3/00*
U.S. Cl. 99—161 9 Claims

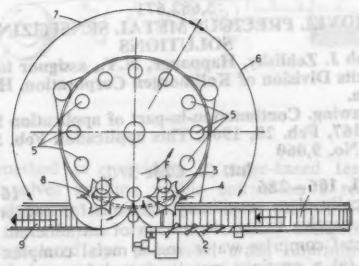
A process for pasteurizing egg whites which consists of separating the egg whites from the egg yolks in the conventional manner. Thereafter, an effective amount of an alkali polyphosphate material is added to the egg whites along with a sufficient amount of food grade acid to adjust the pH thereof to between 6.5 and 8.0. The egg whites are then heated to a pasteurization temperature of 130° F. to 145° F. for a period of from 0.5 to 10 minutes.

3,682,661
EDIBLE VEGETABLE PROTEIN CASING
Albin F. Turbak, 215 Denvale Drive, Danville, Ill. 61832
Filed Jan. 2, 1970, Ser. No. 62
Int. Cl. A22c *13/00*
U.S. Cl. 99—176 7 Claims



An edible vegetable protein sausage casing is produced by dispersing a film-forming vegetable protein in water, extruding the vegetable protein dispersion through an annular die to form a vegetable protein tube, and coagulating and tanning the extruded vegetable protein tube.

3,682,662
PROCESS FOR CANNING FRUITS
Jean Blezat, 117 Rue Sully 69, Lyon 6e, France, and Daniel Dumont, 106 Avenue de Versailles 75, Paris 16e, France
Filed Dec. 29, 1969, Ser. No. 888,737
Int. Cl. A23b *7/00*
U.S. Cl. 99—186 3 Claims

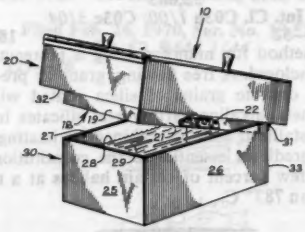


The invention relates to a process and an installation for the canning of foodstuffs consisting of admitting into a container the product to be canned and a certain amount of a complementary product having the same degree of quality as that present in the product to be canned, this admission being effected in such a way that the amount of the product to be canned and of the complementary product is constant; the invention also consists of admitting into the container a constant amount of a compensatory product whose quality is of a degree such that it produces the required degree of quality in the goods canned.

3,682,663
CONVENIENCE PACKAGE FOR THE PREPARATION OF SINGLE-CRUST PIES AND THE LIKE
Denis Robinson and Richard Howard Whelan, Medfield, and Philip Harvey Katz, Milford, Mass., and Anthony George Montuori, Plainview, N.Y., assignors to CPC International, Inc.
No Drawing. Filed Apr. 1, 1970, Ser. No. 24,881
Int. Cl. B65b *23/18, 25/22*
U.S. Cl. 99—192 8 Claims

A frozen food package for the preparation of single-crust pies such as meat- or fish-based "pot pies" or the like comprises an outer carton containing at least one "cooking pouch" containing a suitable frozen precooked filling and at least one precooked vacuum packed frozen pastry crust which is adaptable to being thawed and heated in a conventional automatic toaster. The filling and pastry are present in the carton in at least unit portions and in respective amounts which are complementary to each other.

3,682,664
BUN WARMER AND STEAMER AND HOTDOG COOKER
Tarquin C. Bennett, 123–125 N. 6th St., Marshall, Ill. 62441
Filed Nov. 19, 1970, Ser. No. 91,075
Int. Cl. A21d *15/00*
U.S. Cl. 99—339 2 Claims

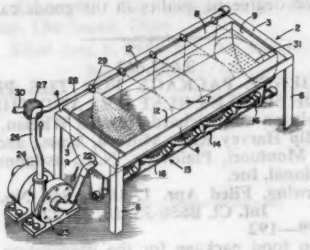


A device for warming and steaming buns and for cooking hotdogs. A top vessel is pivotally mounted to a bottom vessel and has a perforated bottom wall for allowing steam to seep therethrough. A lid pivotally mounted to the top vessel has a pair of handles. One of the handles may be pulled upwardly to pivot the top vessel with respect to the bottom vessel whereas the other handle may be pulled upward to pivot the lid with respect to the top vessel.

3,682,665
COOKING APPARATUS FOR GRAINS AND THE LIKE
Inocente A. Diaz, 287 San Jose Ave., San Jose, Calif. 95125
Filed Nov. 26, 1969, Ser. No. 880,179
Int. Cl. A47j *37/12*
U.S. Cl. 99—409 1 Claim

Presented is a cooking apparatus including a vat within which a quantity of a food product to be cooked may be immersed, with provision being made for recirculating the cooking medium in a manner to agitate the food product as it is being cooked while effectively dispersing throughout the body of food product being cooked any type of additive such as lye, for instance, that might be added to

the cooking medium. Additionally, baffle means are provided in the vat to retain the food product away from the



hot sides of the vat to prevent burning or scorching of the food product being cooked.

ERRATUM

For Class 106—55 see:
Patent No. 3,682,657

3,682,666
BATCH MATERIAL FOR VITREOUS MANUFACTURES

Michel Lacourrege, Neuilly-sur-Seine, France, assignor to Saint-Gobain, Neuilly-sur-Seine, France

Continuation-in-part of application Ser. No. 621,284, Mar. 7, 1967. This application Jan. 21, 1971, Ser. No. 108,362
Claims priority, application France, Mar. 9, 1966, 52,685
Int. Cl. C03b *1/00;* C03c *3/04*
U.S. Cl. 106—52 **18 Claims**

A novel method for manufacturing a prereacted glass material is disclosed. A free flowing, granular pre-product consisting in discrete grains of silica coated with complex alkali metal-alkaline earth metal silicates in a substantially crystallized state is obtained by heating part of the batch ingredients essential to the constitution of the glass with a few percent of certain halides at a temperature lower than 787° C.

3,682,667
HIGH TEMPERATURE INSULATION BLOCK

James R. Roberts, Palatine, and Heber C. Roach, Mount Prospect, Ill., assignors to United States Gypsum Company, Chicago, Ill.

No Drawing. Filed June 18, 1970, Ser. No. 47,612
Int. Cl. C04b *43/02*
U.S. Cl. 106—67 **6 Claims**

Improved thermal-insulating material is made from an organic binder, mineral wool, asbestos fiber, clay and a wax-asphalt emulsion.

3,682,668
ORGANIC-INORGANIC SILICATE BINDER FOR REFRACTORY PROCESSES

Tadao Fujita, Amagasaki, Makoto Wake, Sakai, and Kunihiko Konishi, Osaka, Japan, assignors to Kubota Tekko Kabushiki Kaisha, Osaka-shi, Osaka-fu, Japan

No Drawing. Continuation-in-part of application Ser. No. 851,438, Aug. 19, 1969, which is a continuation-in-part of application Ser. No. 626,740, Mar. 29, 1967. This application June 15, 1970, Ser. No. 46,494
Int. Cl. C09d *1/04;* C09j *1/02*
U.S. Cl. 106—74 **4 Claims**

Silicic binders are prepared by admixing:

(1) an inorgainic silicate, colloidal silica or a mixture thereof with organic silicate, and

(2) a saturated monohydric alcohol at a pH of between 2.5 and 0.05. The resultant solution is a binder with excellent properties.

The binder of the present invention polymerizes rapidly, has a long shelf life and good heat resistance.

3,682,669
HYDRAULIC CEMENT AND METHOD OF PRODUCING SAME

Thomas C. Slater, Sutter Creek, Calif., and Floyd C. Hamilton, Jr., Louisville, Ky., assignors to The Flintkote Company, White Plains, N.Y.

Continuation-in-part of application Ser. No. 70,596, Sept. 8, 1970, which is a continuation of application Ser. No. 652,275, July 10, 1967. This application Oct. 30, 1970, Ser. No. 85,776
Int. Cl. C04b *7/38*
U.S. Cl. 106—100 **11 Claims**

Ground mixtures of conventional portland cement-making components are mixed with relatively small amounts of boron-containing components, and the mixtures are burned at kiln temperatures substantially below those normally utilized to form clinker. The resultant clinker is more easily grindable than that produced in conventional processes of portland cement production, and the cement resulting from the grinding of the clinker yields cementitious product possessing substantially higher compressive strength than is exhibited by portland cement made from the same components in the absence of the boron-containing component.

3,682,670
PROCESS FOR THE PREPARATION OF FIBER-CONTAINING PLASTER PRODUCTS

Birger Rustan, Drammen, Norway, assignor to B. Rustan A/S, Drammen, Norway

Filed July 2, 1970, Ser. No. 51,863
Int. Cl. C04b *11/00*
U.S. Cl. 106—110 **3 Claims**

It is known to prepare plaster products containing glass or rock wool fibers as reinforcing components, but so far it has not been possible to obtain an even distribution of relatively long fibers therein. According to the invention there is provided a process for preparing such products wherein glass wool and/or rock wool is carded, adding plaster powder to the fibers as they are carded to provide a dry composition which is mixed with water and used for casting.

3,682,671
NOVEL PRECIOUS METAL SENSITIZING SOLUTIONS

Rudolph J. Zeblisky, Happauge, N.Y., assignor to Photocircuits Division of Kollmorgen Corporation, Hartford, Conn.

No Drawing. Continuation-in-part of application Ser. No. 801,167, Feb. 20, 1969. This application Feb. 5, 1970, Ser. No. 9,060
Int. Cl. C23c *3/02*
U.S. Cl. 106—286 **16 Claims**

Optically clear sensitizing solutions for rendering surfaces receptive to the deposition of an adherent electroless metal comprise water and a metal complex consisting of (a) a precious metal selected from a group consisting of the precious metals of the fifth and sixth periods of Groups VIII and I–B of the Periodic Table of Elements, (b) a Group IV metal of the Periodic Table of Elements which is capable of two valence states and (c) an anion capable of forming a stable moiety with both valence states of the Group IV metal, in which the molar ratio of (a) to (b) to (c) is from about 1:1:3 to 1:6:24.

The solutions can be prepared directly from the components or, preferably, by diluting a concentrate. The solutions can be stabilized against precious metal separation by adding an organic mono-ol, diol or polyol, a fluorinated hydrocarbon wetting agent or hydrogen fluoride.

Processes for rendering surfaces receptive to the deposition of an electroless metal are also provided in which there are employed the new sensitizing solutions.

3,682,672

MOLYBDENUM RED AND MOLYBDENUM ORANGE PIGMENTS AND PROCESS OF MAKING THE SAME

Kurt Mau, deceased, late of Stuttgart, Germany, by Käthe Mau, heir, Stuttgart, Edith Mau, heir, Berlin-Aldershof, and August Seitz, Besigheim, Germany, assignors to FA. G. Siegle & Co. GmbH, Stuttgart, Germany

No Drawing. Continuation-in-part of application Ser. No. 653,327, July 14, 1967. This application June 22, 1970, Ser. No. 48,493

Claims priority, application Germany, July 28, 1966, S 105,066

Int. Cl. C09c *1/20, 1/62*

U.S. Cl. 106—297 **1 Claim**

Molybdenum red and molybdenum orange pigments having a high resistance to sulfurous acid prepared by treating the pigment directly after its precipitation with water soluble compounds that in solution yield antimony (III), fluorine and silicate ions and thereafter adjusting the pH value of the reaction mixture with alkali to a value of about 6 to about 8.5, wherein the addition of antimony (III) compounds calculated as Sb_2O_3 amounts to from 3.5 to 6% antimony and the silicate ions calculated as SiO_2 amounts to about from 2.5 to 5%.

3,682,673

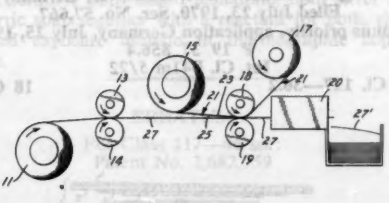
LATENT IMAGING OR HIDDEN ENTRY SYSTEM

Wendell J. Manske, Birchwood, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Apr. 8, 1970, Ser. No. 26,620

Int. Cl. B44f *1/10*

U.S. Cl. 117—1.7 **8 Claims**



This method of providing a paper-based feedback system involves printing visible entries on a receptor sheet; juxtaposing a coated sheet upon the printed surface of the receptor sheet, the coating comprising a microencapsulated dye precursor; crash imprinting the juxtaposed sheets such that the receptor sheet receives a latent image comprising the dye precursor; and developing the latent image with a coreactant for the dye precursor.

3,682,674

Patent Not Issued For This Number

3,682,675

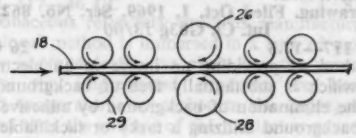
METHOD OF PRODUCING FIRE RETARDANCE IN A PREFINISHED PANEL

Clifford E. Myers, Forest Grove, Oreg., assignor to The Welsh Corporation, Longview, Wash.

Filed Oct. 28, 1969, Ser. No. 871,915

Int. Cl. B44d *1/14;* **C09k** *3/28*

U.S. Cl. 117—8 **6 Claims**



A method of producing fire retardance in a prefinished panel. A panel is impregnated in a region directly adjacent its face with a fire retardant chemical solution at an elevated temperature. After subsequent calendering and drying, to produce a dense impregnated layer extending over the face of the panel, the finish is applied, with such layer then acting as a fire retardant barrier in the panel under the finish.

3,682,676

THERMOSETTING RESIN COATINGS

John H. Karrh, R.F.D. 4, Box 74, Powhatan, Va. 23139, and George H. Flowers, Jr., deceased, late of Richmond, Va., by Mary Frances Buchanan Flowers, 37 Chatham Square, 6161 River Road 23226, and H. Merrill Pasco, 18th Floor, 700 E. Main St. 23219 or P.O. Box 1535 23212, executors, both of Richmond, Va.

Filed Feb. 24, 1970, Ser. No. 13,514

Int. Cl. B44d *1/44*

U.S. Cl. 117—16 **14 Claims**

There is provided a thermoplastic resin coating process which produces a coated product that is substantially free of pin holes. The thermoplastic resin is coated on a solid substrate, e.g., the internal surface of a concrete pipe, and finely divided solid particles, having a greatest dimension less than the coating thickness, are impinged on and into the coating, while the coating is in a flowable state, to dislodge and displace from the coating substantially all the gases entrapped in the coating. Thereafter, the coating is gelled and cured. Suitably, the coating is

an epoxy resin and the solid particles are finely divided sand which particles have been impinged on the coating at velocities of between 5 and 75 ft./sec.

3,682,677
BACKGROUND REMOVAL

Robert W. Gundlach, Victor, and Warren L. Rhodes, Rochester, N.Y., assignors to Xerox Corporation, Rochester, N.Y.

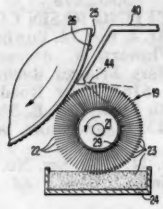
No Drawing. Filed Oct. 1, 1969, Ser. No. 862,971
Int. Cl. G03g *13/00*
U.S. Cl. 117—17.5 **26 Claims**

A method of providing an image in an electrostatic process which is substantially free of background comprising the elimination of background by adhesive retention of background utilizing a tacky or tackifiable member.

3,682,678
METHOD OF DEVELOPING ELECTROSTATIC IMAGES

Yaqub Moradzadeh, Saratoga, and Albert C. Bettiga, San Jose, Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 24, 1969, Ser. No. 869,081
Int. Cl. G03g *13/08*
U.S. Cl. 117—17.5 **9 Claims**



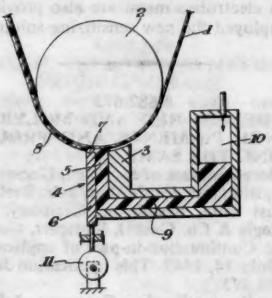
Method and apparatus for fur brush development of electrostatic images on an insulating surface. Mechanical separators separate the fur brush fibers to present unmatted toner-carrying fur fibers for contact with an electroplate surface. Alternatively, the toner-carrying fur brush material may be elastically stretched over a mandrel through an angle sufficient to separate the fibers, to prevent matting, independent of humidity or wear conditions, to present unmatted fur fibers for contact with an electroplate surface.

3,682,679
PROCESS FOR COATING SUBSTRATES IN STRIP FORM

Peter Herzhoff, Leverkusen, Hans Gref, Cologne-Stammheim, Fritz Maus, Cologne-Flittard, Willi Wasser, Leverkusen, Kurt Browatzki, Opladen, Josef Friedsam, Langenfeld, and Wolfgang Schweicher, Leverkusen, Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany

Filed Feb. 10, 1969, Ser. No. 798,118
The portion of the term of the patent subsequent to Feb. 28, 1989, has been disclaimed
Int. Cl. B05c *3/12*; G03c *1/74*
U.S. Cl. 117—34 **2 Claims**

A method of coating a strip of viscous material on a movable substrate by feeding the material through a narrow gap between feed means and a movable substrate under a static pressure differential between the inlet and outlet of the gap. The gap is several times wider than the wet formed layer after formation. In the initial layer forming steps and in the concluding layer forming steps the height of the gap from the substrate is reduced so that it is spaced about twice the thickness from the substrate. In the layer forming operation between these



initial and closing steps the gap is raised in height in accordance with the normal static pressure differential. A uniform thickness of the formed layer is obtained.

3,682,680
CLAY-COATED SHEET FOR PRESSURE-SENSITIVE COPYING SHEET

Takao Hayashi and Hiroharu Matsukawa, Shizuoka, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

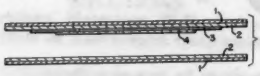
No Drawing. Filed May 12, 1970, Ser. No. 36,667
Claims priority, application Japan, May 12, 1969, 44/36,405
Int. Cl. B41m *5/16*
U.S. Cl. 117—36.2 **8 Claims**

A clay-coated sheet for use in a pressure-sensitive copying sheet comprising a support having coated thereon a clay layer containing an alkali metal salt of an organic acid.

3,682,681
TRANSFER SET INCORPORATING COLOUR REACTION SHEETS

Ernst Kunkel, Hannover, Germany, assignor to Guenther Wagner Pelikan-Werke, Hannover, Germany

Filed July 23, 1970, Ser. No. 57,667
Claims priority, application Germany, July 25, 1969, P 19 37 856.4
Int. Cl. B41m *5/22*
U.S. Cl. 117—36.2 **18 Claims**



According to the invention a top sheet and at least one copy sheet of a set of printed forms, or other transfer set, of colour reaction paper are integrally joined across a fold line. The colour receiving layer on the top surface of the copy sheet is also applied in a single operation, before the folding, to the lower surface of the top sheet. Over the receiving layer on the lower surface of the top sheet there is subsequently applied a layer of a neutralising agent and, over the neutralising agent layer, at those parts of the top sheet which are intended for transmitting the typed message, a printed colour forming layer.

3,682,682

PRESSURE-SENSITIVE COPYING MATERIAL

Hans Heinrich Bosshard and Klaus-Dieter Leifels, Binningen, Switzerland, and Bernd Seyberlich, Rheinweiler, Germany, assignors to Ciba-Geigy AG, Basel, Switzerland

No Drawing. Filed Jan. 7, 1970, Ser. No. 1,288
Claims priority, application Switzerland, Jan. 15, 1969, 485/69
Int. Cl. B41m 5/16
U.S. Cl. 117—36.7 6 Claims

Pressure-sensitive copying material containing, on a paper-sheet, a white pigment layer containing a finely divided solvent dye and, on another sheet, microballoons containing a solvent for the solvent dye.

3,682,683

TRANSFER MEDIUM AND PROCESS OF MAKING

Donald L. Elbert, Hugh T. Findlay, and William H. Horne, Lexington, Ky., assignors to International Business Machines Corporation, Armonk, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 686,788, Nov. 30, 1967. This application Nov. 12, 1969, Ser. No. 876,122
Int. Cl. B41m 5/10
U.S. Cl. 117—36.1 9 Claims

A transfer medium suitable for use, for example, as a typewriter ribbon is formed by coating a mixture of ink and resin contained in a volatile organic solvent on a polymer film and heating to remove the solvent. The ink, comprising coloring material dispersed in a vehicle, the resin and the solvent are selected such that the ink is preferentially solubilized in the solvent. During the evaporation of the solvent, this results in the ink becoming concentrated at the evaporating surface to produce a transfer medium having an exposed, ink rich surface.

3,682,684

WIDE LATITUDE HEAT-SENSITIVE COPY-SHEET AND METHOD OF MAKING

Donald J. Newman and Donald J. Williams, White Bear Lake, and John R. Berg, St. Paul, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

No Drawing. Filed Mar. 10, 1971, Ser. No. 123,106
Int. Cl. B41m 5/18
U.S. Cl. 117—36.9 7 Claims

Heat sensitive copy sheet, containing both silver soap and ferric soap together with a reactant for both, shows increased exposure latitude in thermographic copying process.

ERRATUM

For Class 117—46 see:
Patent No. 3,682,759

3,682,685

METHOD OF TREATING GLASS FIBERS

Charles E. Rix and Karol J. Mysels, Winston-Salem, N.C., assignors to Penick & Ford Limited, Cedar Rapids, Iowa

No Drawing. Filed Mar. 30, 1970, Ser. No. 23,961
Int. Cl. C03c 25/02
U.S. Cl. 117—46 CA 9 Claims

A process for preparing heat cleaned glass fibers wherein the fibers are first sized with a starch-based size including an insolubilizing agent capable of transforming any inorganic constituents of said size into water-insoluble compounds upon pyrolysis in an oxidizing atmosphere, and pyrolyzing the size composition in an oxidizing atmosphere. The resulting ash residue is characterized by low electrical conductivity.

3,682,686

METHOD OF MANUFACTURING CARBONACEOUS REFRACTORY PRODUCTS

Toshio Nakamura and Hidekichi Ozeki, Gifu-ken, Japan, assignors to Akechi Taikarengo Kabushiki Kaisha, Enagun, Gifu-ken, Japan

No Drawing. Filed Oct. 21, 1970, Ser. No. 82,857
Claims priority, application Japan, Aug. 6, 1970, 45/68,845
Int. Cl. C04b 41/06, 41/28
U.S. Cl. 117—46 CC 5 Claims

Carbonaceous refractory products manufactured by a conventional method is immersed in a bath of molten tar pitch to impregnate the tar pitch into the pores of the products, the impregnated products are heated to elevated temperatures to carbonize the impregnated tar pitch and then the surface of the product is covered with a layer of glaze.

3,682,687

PROCESS FOR PRETREATING GLASS FIBERS FOR REINFORCING RUBBER ARTICLES

Satoru Obuchi, Suita-shi, Osaka-fu, Tokuji Fukuoka, Ujishi, Kyoto-fu, Saburyo Nagato, Kyoto-shi, Kunio Murakami, Uji-shi, Kyoto-fu, Tamikazu Shigeta, Kyoto-fu, and Hiroyuki Hayashi, Uji-shi, Kyoto-fu, Japan, assignors to Nippon Rayon Kabushiki Kaisha (Nippon Rayon Co., Ltd.), Kyoto-fu, Japan

No Drawing. Filed July 3, 1969, Ser. No. 839,057
Claims priority, application Japan, July 8, 1968, 43/47,723; Dec. 11, 1968, 43/90,707
Int. Cl. G03c 25/02
U.S. Cl. 117—72 8 Claims

This invention relates to a process for pretreating glass fibers for reinforcing vulcanizable rubber articles, which comprises applying to a glass fiber an aqueous dispersion containing an aminosilane and an epoxy compound, and then applying to said glass fibers an aqueous dispersion of a resorcinol-formaldehyde-latex mixture and an N-methylol alkyl amide, and heating said glass fiber thus treated at a temperature of about 110–240° C. The glass fiber obtained has improved adhesion to rubber, which is not deteriorated when left in air for extended periods.

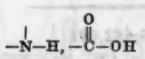
3,682,688

METHOD OF FIXING A CHELATED ORGANIC TITANATE VEHICLE TO A SUBSTRATE

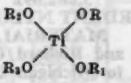
Charles Thomas Hughes, Naperville, Ill., and Duane Owen Paulsen, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed June 17, 1970, Ser. No. 47,162
Int. Cl. C09d
U.S. Cl. 117—168 1 Claim

A stable vehicle for the transfer of pigment, dyes or coatings to a substrate can be prepared from polyactive hydrogen containing compounds having a molecular weight of at least 62 and resins having a molecular weight of from 600 to 10,000 and at least one —OH, —NH_2,



or enolizable keto group and a chelate ester of ortho titanic acid having the formula



wherein R and R_1 are C_2–C_{10} aliphatic hydrocarbyl groups substituted with at least one electron donor group chosen from —OH, —NH_2, substituted amino or $>C=O$ and R_2 and R_3 may be the same as R and R_1 or may be chosen from —H and C_2–C_8 alkyl. The vehicle can be cured by subjecting it to temperatures in excess of 80° C. to produce a smudge-proof print.

3,682,689

PROCESS OF SIMULTANEOUSLY CLEANING AND COATING A PHOTOCONDUCTIVE SURFACE WITH A FLUORINATED HYDROCARBON POLYMER

Ray L. Dueltgen, 713 Cumberland Road, and Carl A. Queener, 700 Cromwell Way, both of Lexington, Ky. 40503

Continuation of abandoned application Ser. No. 762,952, Sept. 26, 1968. This application July 2, 1971, Ser. No. 159,530

Int. Cl. B05c *1/06*

U.S. Cl. 117—111 R 7 Claims

The life of photoconductive insulating layers used in electrophotographic copying processes is extended and their quality is maintained throughout their life by contacting the surface at least periodically during use with a material comprising a fluorinated hydrocarbon polymer. For example, a tufted fibrous web of polytetrafluoroethylene is held in contact with the photoconductive surface such that relative motion occurs between the fibrous web and the surface.

3,682,690

ARTICLE COATED WITH A WATER-WASHABLE TACKY ELASTOMER

Homer C. Amos, 1086 Marshall Way, and Edward T. Strickland, 171 Luring Drive, both of Palm Springs, Calif. 92262

Continuation-in-part of application Ser. No. 612,547, Jan. 30, 1967, which is a continuation-in-part of application Ser. No. 488,166, Sept. 17, 1965. This application June 17, 1970, Ser. No. 46,967

Int. Cl. C09j *7/02;* A47l *25/08*

U.S. Cl. 117—122 P 6 Claims

Upon a base is a film of water-washable tacky elastomer, having a modulus of elasticity (Young's modulus) of about 1 to 100 p.s.i., and an internal viscosity of about 1000 to 20,000 poises or expressed in minutes by another test method, of from 0.1 to 800 minutes. The elastomer is a hydrophobic, water-insoluble elastic solid with low creep, typically made from such materials as polyvinyl chloride, copolymer of vinyl chloride and vinyl acetate, polyurethane, or polysulfide; often a plasticizer compatible therewith is employed to obtain the desired physical qualities.

3,682,691

Patent Not Issued For This Number

3,682,692

FLAME RETARDANT NYLON-CONTAINING MATERIAL

James E. Lamson and Richard C. Nametz, St. Louis, Mich., assignors to Michigan Chemical Corporation, St. Louis, Mich.

No Drawing. Continuation-in-part of abandoned application Ser. No. 767,462, Oct. 14, 1968. This application Dec. 4, 1970, Ser. No. 97,417

Int. Cl. C09k *3/28;* C09d *5/18;* B32b *27/34*

U.S. Cl. 117—137 11 Claims

There is disclosed nylon-containing fabrics rendered flame retardant by the treatment thereof with a coating composition consisting essentially of an aqueous emulsion containing one or more flame retarding agents such as NH_4Br, a latex material such as vinyl chloride polymer as the dispersed phase of said emulsion and a suitable thickening agent. Other additives may also be included, especially those which function as plasticizers and flame retardants such as tris(2,3-dibromopropyl) phosphate.

3,682,693

METALLIZED POLYOLEFIN SUBSTRATES CONTAINING MALEIC RESINS

Habet M. Khelghatian and Wassily Poppe, Springfield, Pa., assignors to Avisun Corporation, Philadelphia, Pa.

No Drawing. Filed Jan. 6, 1969, Ser. No. 789,343

Int. Cl. B44d *1/22*

U.S. Cl. 117—138.8 E 6 Claims

Solid, substantially crystalline polyolefin compositions are provided from blends of a polyolefin and from about 1% to about 55% by weight of a compatible thermoplastic adhesion-promoting maleic resin modifier. The modified compositions may be metallized by conventional electroplating or other metallizing processes to form metallized shaped articles.

3,682,694

OILS FOR HEAT TREATMENT OF THERMOPLASTIC FIBERS

Yasuharu Kato, 1–11 Maruyama-cho, Gamagori, Aichi-Prefecture, Japan, and Hirokazu Matsueda, 350 Azuma-cho, Toyohashi, Aichi-Prefecture, Japan

No Drawing. Filed Jan. 23, 1970, Ser. No. 5,357

Int. Cl. C10m *3/20*

U.S. Cl. 117—138.8 B 2 Claims

In the working and thermal treating of synthetic thermoplastic polymer fibers, improved lubricating compositions are provided comprising at least one lubricating compound of the group tri-2-ethylhexyltrimellitate, triisodecyltrimellitate, tri-polyoxyethylene lauryltrimellitate, tetra-isodecylpyromellitate, and tetra-octylmethylene-bis-phthalate, which may be combined with conventional materials employed in such compositions.

3,682,695

METALLIZED POLYOLEFIN SUBSTRATES CONTAINING TERPENEPHENOLIC RESINS

Habet M. Khelghatian and Wassily Poppe, Springfield, Pa., and Harry J. West, Wilmington, Del., assignors to Avisun Corporation, Philadelphia, Pa.

No Drawing. Filed Jan. 6, 1969, Ser. No. 789,344

Int. Cl. B44d *1/22*

U.S. Cl. 117—138.8 E 5 Claims

Solid, substantially crystalline polyolefin compositions are provided from blends of a polyolefin and from about 1% to about 55% by weight of a compatible thermoplastic adhesion-promoting terpene-phenolic resin modifier. The modified compositions have improved adherency for coatings such as paints and electroplated metals.

3,682,696

METHOD FOR PRODUCING ANTI-STATIC PAPER

Toshitaka Yasuda, Suita, Japan, assignor to Tatsuta Electric Wire & Cable Co., Ltd., Higashi-Osaka, Osaka Prefecture, Japan

No Drawing. Filed Nov. 21, 1969, Ser. No. 878,898

Int. Cl. D21h *1/22*

U.S. Cl. 117—154 4 Claims

The invention relates to the method for producing anti-static paper, and more particularly to the method wherein a static electricity preventive agent, which is insoluble or slightly soluble in water but soluble in organic solvent, viz, a small quantity of static electricity preventive surface active agent of which HLB (the hydrophile-lypophile balance of the molecule) is less than 9, is added

to the pulp in the paper manufacturing process or is admixed with the coating material in the paper coating process.

ERRATUM

For Class 117—156 see:
Patent No. 3,682,733

3,682,697
WATER REPELLING COMPOSITIONS

Edward E. Doherty, P.O. Box 2332, Buford, Ga. 30518

No Drawing. Continuation-in-part of application Ser. No. 631,851, Apr. 19, 1967, now Patent No. 3,558,676. This application Nov. 3, 1970, Ser. No. 86,624

Int. Cl. C09d *3/42*

U.S. Cl. 117—167 3 Claims

A fatty acid chromium complex salt in admixture with cement, paper, textile fabrics, wood, leather and the like to form a water repellent composition. The chromium complex salt is formed by reacting chromium sulfate with a metal salt of a fatty acid and may be applied as a protective coating to various articles such as paper, wood, leather and the like.

3,682,698
METHOD OF COATING SURFACE WITH POLYMER MATERIAL

Peter J. Palmer and Thomas A. Anderson, London, England, assignors to Westinghouse Brake English Electric Semi-Conductors Limited, London, England

No Drawing. Filed Jan. 9, 1970, Ser. No. 1,857

Claims priority, application Great Britain, Jan. 22, 1969, 3,500/69

Int. Cl. H01l *1/10*

U.S. Cl. 117—200 6 Claims

A method for applying a coating of a polyimide to a surface, comprising the steps of applying a layer of a solution of a polyimide polymerizable by condensation polymerization to said surface, and polymerizing the layer at an elevated temperature and at a super atmospheric pressure exerted by an inert gas applied directly to said layer, to provide a polymeric coating undistorted by the chemical condensation products of the condensation polymerization evaporating therefrom.

3,682,699
METHOD OF VAPOR GROWTH OF A SEMICONDUCTOR CRYSTAL

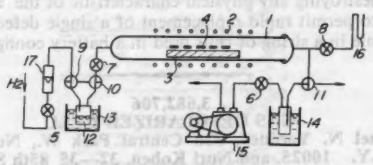
Yasushi Koga and Hirotsugu Kozuka, Tokyo, and Shoji Tauchi, Hino-shi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Oct. 20, 1969, Ser. No. 867,651

Claims priority, application Japan, Oct. 25, 1968, 43/77,378

Int. Cl. B01j *17/28*

U.S. Cl. 117—201 3 Claims



A method of vapor growth of a semiconductor crystal by allowing a reaction gas to flow in parallel to one principal surface of a semiconductor wafer disposed in a reaction tube under reduced pressure, thereby depositing a semiconductor crystal layer uniformly on the principal surface of said semiconductor wafer.

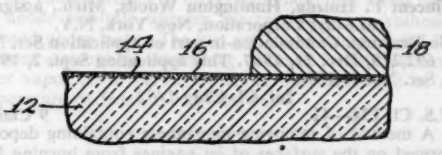
3,682,700
METHOD OF IMPARTING ELECTRICAL CONDUCTIVITY TO AN AMORPHOUS SUBSTRATE BY ION IMPLANTATION, AND THE PRODUCT THEREOF

Nicholas D. Glyptis, Elmhurst, Ill., assignor to Gale Industries, Inc.

Continuation-in-part of application Ser. No. 675,551, Oct. 16, 1967. This application Aug. 15, 1968, Ser. No. 752,964

Int. Cl. H05b *33/28*; H01b *1/06*

U.S. Cl. 117—211 15 Claims



The method of imparting electrical conductivity to an amorphous, normally non-conducting, thermally plasticizable, solid substrate by ion implantation comprising molecularly exciting the substrate at a surface thereof to a molecularly plastic condition and applying to this excited substrate a composition containing inorganic electrically conducting particles of colloidal size and smaller with the result that the particles penetrate or implant the excited plastic substrate at the excited surface between the molecules thereof and impart electrical conductivity to the substrate, the conductivity being retained when the exciting of the solid substrate ceases, the composition comprising a carrier solid that is an inorganic compound of an element of one of Groups III, IV and V of the Periodic Table, an n-type impurity inorganic compound of an element that can exist in a valence state higher than that of the carrier element, and a p-type impurity inorganic compound of an element that can exist in a valence state lower than that of the carrier element, and the products resulting from these methods.

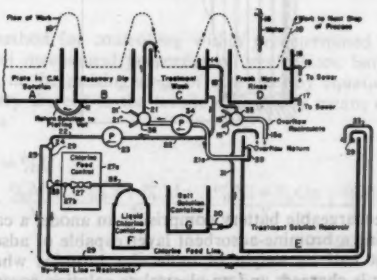
3,682,701
INTEGRATED WASTE WATER TREATMENT FOR REUSAGE AFTER CYANIDE TYPE PLATING

Leslie E. Lancy, Ellwood City, Pa., assignor to Lancy Laboratories Inc., Zelienople, Pa.

Filed Feb. 12, 1970, Ser. No. 11,004

Int. Cl. C02b *1/18*

U.S. Cl. 134—13 14 Claims



Used or waste wash water treatment solution from individual cyanide type plating lines that apply coatings of

different metals on workpieces, having a chelating compound and a dissolved content of plating metal that have been picked up from drag-out on the workpieces, is treated with a salt of metals of the class consisting of calcium, barium, lithium, aluminum and magnesium. The salt acts as an exchange element in the chelating compound to replace a more noble dissolved metal content in the wash water treatment solution before it is reused to wash-off drag-out from workpieces being processed in a different plating line.

3,682,702
METHOD OF REMOVING MANGANESE OXIDE DEPOSITS

Vincent F. Hnizda, Huntington Woods, Mich., assignor to Ethyl Corporation, New York, N.Y.

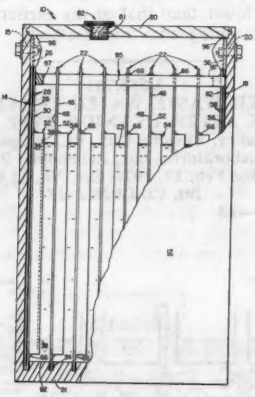
No Drawing. Continuation-in-part of application Ser. No. 692,270, Dec. 21, 1967. This application Sept. 2, 1970, Ser. No. 69,187
Int. Cl. C23g *1/02*
U.S. Cl. 134—41 **9 Claims**

A method of removing manganese containing deposits formed on the surfaces of jet engines from burning fuel containing a cyclopentadienyl manganese tricarbonyl as a smoke reducer, by treating the deposit coated surfaces with an aqueous solution of a mineral acid, an organic acid having an ionization constant at 25° C. greater than 10^{-3}, either in the presence or absence of H_2O_2 or an H_2O_2 source as a promoter.

3,682,703
METAL BROMIDE SYSTEM

Herbert B. Smith, Mattapan, Mass., assignor to The Zito Company, Inc., Derry, N.H.

Filed Feb. 2, 1971, Ser. No. 111,944
Int. Cl. H01m *43/06*
U.S. Cl. 136—6 **5 Claims**



A rechargeable battery comprising an anode, a cathode including a bromine-adsorbent layer capable of adsorbing at least half its weight of molecular bromine when the battery is charged, and an electrolyte solution comprising a divalent electroplatable metal bromide salt, 2 to 10 gms., per liter of electrolyte solution, of $AlCl_3 \cdot 6H_2O$, and 1 to 4 gms., per liter of electrolyte solution, of $KAl(SO_4)_2 \cdot 12H_2O$.

3,682,704
REDOX FUEL CELL REGENERATED WITH SUGAR

Richard Mackay Keefer, Toronto, Ontario, Canada, assignor to Electrocell Limited, Toronto, Ontario, Canada

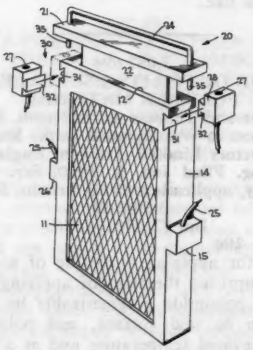
No Drawing. Filed Feb. 5, 1970, Ser. No. 9,044
Int. Cl. H01m *27/00*
U.S. Cl. 136—86 R **9 Claims**

An electrochemical cell has an anodic half-cell which contains an oxidisable organic fuel, such as a sugar, and a redox couple, such as silver-argentous, the cell generating a current on interaction of the fuel and the redox couple whereby the fuel alone is consumed.

3,682,705
REPLACEABLE ELECTROCHEMICAL CELL MODULE

Edward Petix, 16 Searington Drive, Syosset, N.Y. 11791

Filed June 11, 1970, Ser. No. 45,401
Int. Cl. H01m *27/00*
U.S. Cl. 136—86 R **6 Claims**



A lightweight metal/air or metal/oxygen cell is described in which a consumable anode is inserted in and is removable from a cell module comprising an envelope cathode having a pocket for receiving the anode, and a non-conductive frame in which the cathode is mounted. The cell module is provided with an electrical wiring system such that contemporaneously with the replacement of the anode the proper electrical connections are made externally of the cell. The replaceable anode has an associated gripping member which supports an electrical connector constructed and arranged to mate with an electrical connector mounted on the cell module.

These connectors are themselves electrically connected to the appropriate electrodes to establish, when mated, the desired connections for battery operation. The electrical connector mounted on the cell module is readily detachable therefrom, without need for special tools and without destroying any physical characteristic of the cell module, to permit rapid replacement of a single defective cell module in a string of cells used in a battery configuration.

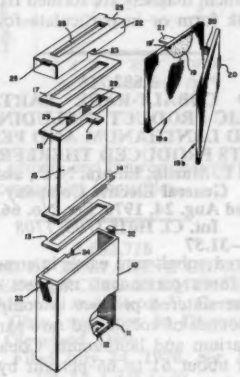
3,682,706
GAS DEPOLARIZED CELL

Michel N. Yardney, 336 Central Park W., New York N.Y. 10025, and Nuri Kohen, 32—35 85th St., Jackson Heights, N.Y. 11375

Continuation of application Ser. No. 837,652, June 30, 1969. This application June 18, 1970, Ser. No. 47,189
Int. Cl. H01m *27/00*
U.S. Cl. 136—86 A **8 Claims**

A battery of the metal/gas-electrode type includes a gas-depolarizable cathode forming at least one pocket or

passage open to the outside by way of a slot (or a pair of opposite slots) in the cell housing. The cathode is in fluidtight contact with the slotted housing and subdivides the interior of the housing into a gas passage or compartment and a surrounding electrolyte compartment. Anode plates are disposed in the electrolyte compartment and



may be interconnected to form a unit detachable from the cathode upon withdrawal of the electrode assembly from the housing. For this purpose the housing may be split into separably interfitting parts. The depolarizing gas circulates through the interior of the housing by thermal convection.

3,682,707

STABILIZATION OF SILVER CATALYST IN AN AIR DIFFUSION ELECTRODE

Yehuda L. Sandler, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Jan. 12, 1970, Ser. No. 2,156
Int. Cl. H01m *29/04, 27/02*
U.S. Cl. 136—86 E **8 Claims**

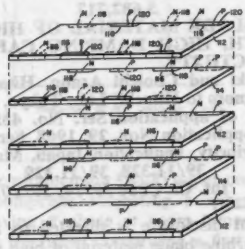
An electrochemical cell, comprising an anode, a gas diffusion cathode containing silver catalyst, and an aqueous electrolyte between the anode and cathode to which is added at least 0.01 mole of either carbonate, phosphate or chloride ions per liter of electrolyte, is used to cause current to flow externally through a load circuit connecting the anode and cathode.

3,682,708

SOLAR CELL

Allan I. Bennett, Export, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Oct. 7, 1969, Ser. No. 864,366
Int. Cl. H01c *15/02*
U.S. Cl. 136—89 **19 Claims**



A solar cell with improved efficiency is provided with a convoluted PN junction whereby a higher proportion of carriers produced by exposure of the solar cell to a source of radiation will be collected by the PN junction rather than being lost by recombination and the solar cell has an increased resistance to radiation damage.

3,682,709

PROCESS FOR IMPROVING NICKEL BASE, NONNOBLE METAL FUEL CELL CATALYSTS

Dirk Pouli, Milwaukee, Wis., and Theodore L. Larson, Longmont, Colo., assignors to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.

No Drawing. Filed Dec. 4, 1967, Ser. No. 687,449
Int. Cl. C21d *1/74;* **H01m** *13/04;* **B01j** *11/22*
U.S. Cl. 148—20.3 **10 Claims**

A heat treating process for improving the performance and life characteristics of nickel base, nonnoble metal fuel cell anode catalysts wherein the catalyst after synthesis is stored under water. The wet material is then heated in an inert atmosphere containing at least 5 mole percent water vapor for a period of about one hour, and at a temperature of from 250 to 700° C.

3,682,710

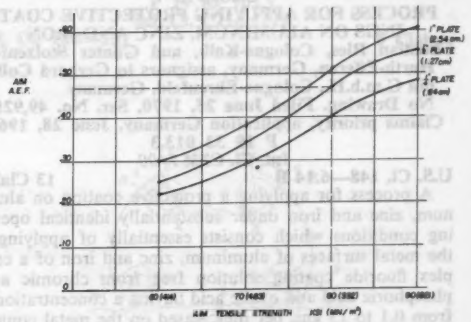
Patent Not Issued For This Number

3,682,711

METHOD OF MELTING STEEL

Howard W. Bennett, Houston, Tex., assignor to Armco Steel Corporation, Middletown, Ohio

Filed June 1, 1970, Ser. No. 41,971
Int. Cl. C21d *7/00*
U.S. Cl. 148—2 **5 Claims**

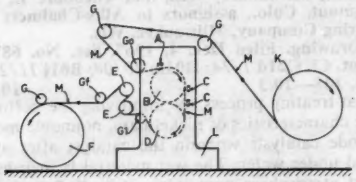


A method for controlling within predetermined limits the final mechanical properties of steel plates, bars and shapes, at the melting stage of said steel by equating the chemistry thereof to the tensile strength by means of the formula:

$$A.E.F. = \%C + \frac{\%Mn}{X} + \frac{\%Cr + \%Mo}{Y} + \frac{\%Ni + \%Cu}{Z} + \frac{\%Si}{Y} + \%V + \%Cb$$

where the divisors are preferably X=6, Y=5, and Z=15, but may vary between about, X=4.5 to 7.5, Y=4 to 6, and Z=12 to 18, so that the A.E.F. is changed to fall within a limited range of a calculateed aim A.E.F. for said tensile strength.

3,682,712
PROCESS FOR CONTINUOUSLY ANNEALING ALUMINUM STRIP
Jacques Vernier, Rue Henri Barbusse, 38 Froges, France
Filed May 25, 1970, Ser. No. 41,147
Int. Cl. C22f *1/04*
U.S. Cl. 148—13 **4 Claims**



The annealing of strips of aluminum and alloys of aluminum in the cold rolled state in which the strip is continuously advanced for sequential increase in temperature substantially uniformly crosswise of the strip by successively passing the strip before a first series of heating elements which introduce one increment of heat, over a portion of a heated drum which introduces an additional increment of heat, before a second series of heating elements which introduce a still further increment of heat, and then over a portion of a heated drum further to raise the temperature of the strip and finally over cooling rolls to reduce the temperature of the strip and supporting the strip on rollers between the cooling means and the wind-up roll to effect the desired gripping relationship for feeding the strip to the wind-up roll.

3,682,713
PROCESS FOR APPLYING PROTECTIVE COATINGS ON ALUMINUM, ZINC AND IRON
Christian Ries, Cologne-Kalk, and Günter Stolzenfels, Hurth-Efferen, Germany, assignors to Gerhard Collardin G.m.b.H., Cologne-Ehrenfeld, Germany
No Drawing. Filed June 25, 1970, Ser. No. 49,925
Claims priority, application Germany, June 28, 1969, P 19 33 013.3
Int. Cl. C23f *7/00*
U.S. Cl. 148—6.14 R **13 Claims**

A process for applying a protective coating on aluminum, zinc and iron under substantially identical operating conditions which consists essentially of applying to the metal surfaces of aluminum, zinc and iron of a complex fluoride coating solution free from chromic acid, phosphoric acid and oxalic acid having a concentration of from 0.1 to 15 gm. per liter, based on the metal content, of complex fluorides of metals selected from the group consisting of boron, titanium, zirconium and iron, from 0.1 to 10 gm. per liter of free fluoride ions and from 0.5 to 30 gm. per liter, calculated as sodium m-nitrobenzene sulfonate, of an oxidizing agent, at a pH of from 3.0 to 6.8 for a time sufficient to form a coating. The applied coatings can be post-passivated with solutions containing chromic or phosphoric acids.

3,682,714
SINTERED COBALT-RARE EARTH INTERMETALLIC PRODUCT AND PERMANENT MAGNETS PRODUCED THEREFROM
Donald L. Martin, Elnora, N.Y., assignor to General Electric Company
Filed Aug. 24, 1970, Ser. No. 66,171
Int. Cl. H01f *1/06, 1/08*
U.S. Cl. 148—31.57 **7 Claims**

Novel sintered cobalt-rare earth intermetallic products are used to form permanent magnets having unique properties. The sintered product is comprised of intermetallic compounds of cobalt and rare earth metals composed of samarium and praseodymium. Cobalt is present in an amount of about 61 to 64 percent by weight of the product and the rare earth metals are present in an amount of about 36 to 39 percent by weight of the product with the praseodymium component ranging in amount from about 10 to 90 percent by weight of the rare earth content. Permanent magnets are formed from the sintered product in bulk form or in particulate form.

3,682,715
SINTERED COBALT-RARE EARTH INTERMETALLIC PRODUCT INCLUDING SAMARIUM AND LANTHANUM AND PERMANENT MAGNETS PRODUCED THEREFROM
Donald L. Martin, Elnora, N.Y., assignor to General Electric Company
Filed Aug. 24, 1970, Ser. No. 66,173
Int. Cl. H01f *1/06, 1/08*
U.S. Cl. 148—31.57 **6 Claims**

Novel sintered cobalt-rare earth intermetallic products are used to form permanent magnets having unique properties. The sintered product is comprised of intermetallic compounds of cobalt and rare earth metals composed of samarium and lanthanum. Cobalt is present in an amount of about 61 to 66 percent by weight of the product and the rare earth metals are present in an amount of about 34 to 39 percent by weight of the product with the lanthanum component ranging in amount from about 10 to 90 percent by weight of the rare earth content. Permanent magnets are formed from the sintered product in bulk form or in particulate form.

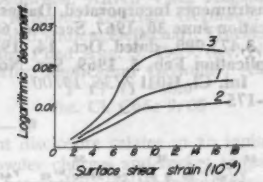
3,682,716
SINTERED INTERMETALLIC PRODUCT OF COBALT, SAMARIUM AND CERIUM MISCHMETAL AND PERMANENT MAGNETS PRODUCED THEREFROM
Donald L. Martin, Elnora, and Mark G. Benz, Burnt Hills, N.Y., assignors to General Electric Company
Filed Aug. 24, 1970, Ser. No. 66,216
Int. Cl. H01f *1/06, 1/08*
U.S. Cl. 148—31.57 **6 Claims**

Novel sintered cobalt-rare earth intermetallic products are used to form permanent magnets having unique properties. The sintered product is comprised of intermetallic compounds of cobalt and rare earth metals composed of samarium and cerium mischmetal. Cobalt is present in an amount of about 61 to 66 percent by weight of the product and the rare earth metals are present in an amount of about 34 to 39 percent by weight of the product with the cerium mischmetal component ranging in amount from about 10 to 90 percent by weight of the rare earth content. Permanent magnets are formed from the sintered product in bulk form or in particulate form.

3,682,717
TURBINE BLADE MATERIAL OF HIGH TENSILE STRENGTH, HIGH DAMPING CAPACITY AND HIGH DUCTILITY
Ryoichi Sasaki and Choichi Asano, Hitachi-shi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Continuation of application Ser. No. 435,878, Mar. 1, 1965. This application Nov. 29, 1968, Ser. No. 781,696
Claims priority, application Japan, Mar. 2, 1964, 39/11,328, 39/11,329
Int. Cl. C22c *39/14, 39/20*
U.S. Cl. 148—37 **8 Claims**

The present disclosure is directed to a low pressure stage, long turbine blade material of high tensile strength, high damping capacity and high ductility consisting essentially of about 0.2–0.5% of carbon, about 9.5–14% of chromium, about 0.3–2.5% of molybdenum, up to

about 1.8% of at least one member selected from the group consisting of nickel and copper, about 0.03–2% of



manganese and silicon, and the residual part composed of iron and its accompanying impurities.

3,682,718

METHOD OF PREPARING CONCRETE REINFORCING ELEMENTS

Bert E. Palm, Mentor, and Victor V. Germano, Mentor-on-the-Lake, Ohio, assignors to Diamond Shamrock Corporation, Cleveland, Ohio

No Drawing. Filed July 24, 1970, Ser. No. 58,153
Int. Cl. C23f 7/26
U.S. Cl. 148—6.2 4 Claims

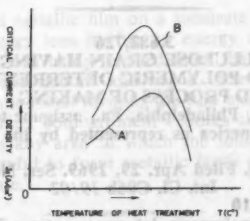
Concrete reinforcing elements are coated prior to their use with concrete. The coating comprises a pulverulent metal in intimate mixture with the residue from a composition containing an organic component plus a hexavalent-chromium-providing substance. The coating provides excellent corrosion resistance for the reinforcing elements and further affords enhanced adhesion for concrete to the coated element.

3,682,719

PROCESS FOR PRODUCING Nb-Ti SUPER CONDUCTING MATERIAL

Takuya Suzuki, 12–18 1-chome Futaba Shinagawaku; and Masaru Ikeda, 11–1 2-chome Higashitamagawa Setagaya-ku, both of Tokyo, Japan; Yoshio Furuto, 11–3 Nakakibogaoka Asahi-ku, Yokohama-shi, Kanagawa, Japan; and Yukihiro Nagata, 12–18 1-chome, Futaba Shinagawa-ku; and Takeshi Miura, 21–4 1-chome, Nakano, Nakano-ku, both of Tokyo, Japan

Filed Mar. 9, 1970, Ser. No. 17,374
Claims priority, application Japan, Mar. 11, 1969, 44/18,483
Int. Cl. C22f 1/00
U.S. Cl. 148—12.7 12 Claims



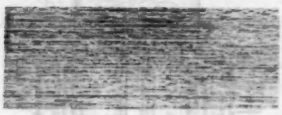
A process for producing a Nb-Ti super conducting material, which comprises subjecting a super conducting Nb-Ti alloy having β phase at room temperatures to a two-step ageing treatment comprising a first ageing treatment at a lower temperature for a longer period and a second ageing treatment at a higher temperature for a shorter period.

3,682,720

MANUFACTURE OF SUBSTANTIALLY NON-SAGGING REFRACTORY METAL WIRE

Richard F. Cheney, Towanda, and Theodore L. Weaver, Troy, Pa., assignors to Sylvania Electric Products, Inc.

Filed Mar. 19, 1970, Ser. No. 20,973
Int. Cl. H01k 1/02; C21d 1/00
U.S. Cl. 148—126 8 Claims



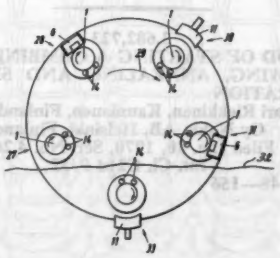
The non-sagging property of refractory metal wire can be substantially improved by incorporating into the process of manufacturing refractory metal wire the additional step of heat treating the as-drawn wire under controlled conditions for a sufficient length of time.

3,682,721

PROCESS FOR THE IMPROVEMENT OF THE DEVELOPMENT OF THE TEXTURE OF INDUCTIVE SURFACE-HARDENED STEEL PARTS

Gerhard Seulen and Friedhelm H. Reinke, Remscheid, and Edgar Stengel, Wuppertal-Hahnerberg, Germany, assignors to AEG-Elotherm G.m.b.H., Remscheid-Hasten, Germany

Filed Nov. 25, 1969, Ser. No. 879,878
Claims priority, application Germany, Jan. 15, 1969, P 19 01 701.7
Int. Cl. C21d 1/10
U.S. Cl. 148—131 6 Claims



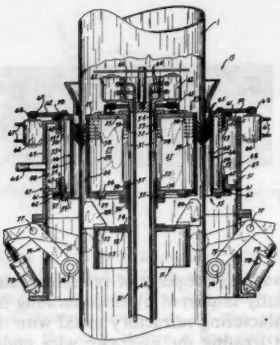
A method and apparatus for inductively surface hardening a steel workpiece wherein the workpiece is first heated to a temperature above the highest critical temperature AC_3, cooled to a temperature below the lowest critical temperature AC_1, so that the structure of the steel consists of pearlite or bainite, inductively reheated to a temperature above AC_3 and quenched. Preferably the workpieces are elongated and are continuously rotated during heating and cooling. The apparatus disclosed includes a machine with a number of working stations for heating and cooling the workpiece and a carrier spider for moving the workpieces from station to station.

3,682,722

QUENCHING OF TUBULAR METAL ARTICLES

Bertil G. Winstrom, Mequon, Wis., assignor to A. O. Smith Corporation, Milwaukee, Wis.

Filed Mar. 23, 1970, Ser. No. 21,774
Int. Cl. C21d 9/08
U.S. Cl. 148—143 1 Claim



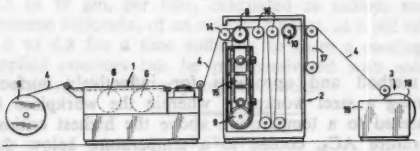
A metal pipe is suspended from a tower by a hanger stem for being operated on with a quenching process. After first being heated, the pipe is lowered to a quenching assembly where rotating streams of concentrated, high pressure quench fluid is applied to both surfaces of the pipe simultaneously. The rotating streams are provided by concentric inner and outer rotary quench heads, between which the pipe telescopes. The inner head is operably supported in a well by an inner stem, which has a shell beneath the quench head. The shell is engaged by a guide arm assembly to center the stem and inner quench head within the well. When the pipe is lowered to the level of the guide assembly, the guide assembly disengages the shell and guides the pipe to center it between the quench heads.

3,682,723

METHOD OF STARTING A COMBINED WIRE-DRAWING, ANNEALING AND SPOOLING OPERATION

Asko Sakari Riekkinen, Kaunianen, Finland, assignor to Oy Nokia AB, Helsinki, Finland

Filed Jan. 20, 1970, Ser. No. 4,263
Int. Cl. C21d 9/52
U.S. Cl. 148—156 3 Claims



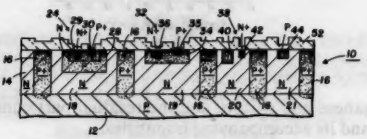
A method of and a device for starting a combined wire-drawing, annealing and spooling operation in which the wire feeding capstan is driven by the annealer to accelerate the speed of the wire independently of the acceleration of the rotation of the drawing wheels of the drawing machine.

3,682,724

PROCESS FOR FABRICATING INTEGRATED CIRCUIT HAVING MATCHED COMPLEMENTARY TRANSISTORS

Ralph O. Bohannon, Jr., Richardson, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Original application June 30, 1967, Ser. No. 650,502, now Patent No. 3,473,090, dated Oct. 14, 1969. Divided and this application Feb. 5, 1969, Ser. No. 810,435
Int. Cl. H01l 7/36, 19/00
U.S. Cl. 148—175 4 Claims



A process for fabricating an integrated circuit having a matched pair of complementary transistors, and different resistors, diodes and capacitors. The starting material is a p-type substrate with an n-type epitaxial layer. First the collector region of the PNP transistor is partially diffused, then p-type isolation rings diffused around both transistors and through the epitaxial layer. Then a third p-type diffusion is made to form the base region of the NPN transistor, a first n-type diffusion is made to form the base region of the PNP transistor, a second n-type deposition is made to form the emitter region of the NPN transistor and base contact of the PNP transistor, and finally a fourth p-type diffusion is made to form the emitter of the PNP transistor and the base contact of the NPN transistor. The product is an integrated circuit wherein each individual component is isolated and the two transistors have substantially the same operational parameters. A separate resistor diffusion is made prior to the emitter diffusion to achieve a high sheet resistance.

3,682,725

EXPLOSIVE PARTICLES COATED WITH A WATER-SOLUBLE IONIC DYE

Cornelius James Noel Kelly, Simsbury, Conn., assignor to The Ensign-Bickford Company, Simsbury, Conn.

No Drawing. Filed Apr. 30, 1969, Ser. No. 820,639
Int. Cl. C06b 19/02
U.S. Cl. 149—9 9 Claims

Enhanced flow properties are exhibited by noncaking particulate high explosive materials having a coating of an ionic dye adsorbed on the surface of the explosive particles.

3,682,726

NITROCELLULOSE GRAIN HAVING CROSS-LINKED POLYMERIC DETERRENT COATING AND PROCESS OF MAKING

Ludwig Stiefel, Philadelphia, Pa., assignor to the United States of America as represented by the Secretary of the Army

No Drawing. Filed Apr. 29, 1969, Ser. No. 820,711
Int. Cl. C06b 19/02
U.S. Cl. 149—10 11 Claims

Crosslinked polymeric deterrent coatings for propellant grains for reducing the burning rate of outer portions of the grains, and comprising compositions, typically, of resins of polyvinyl butyral and melamine formaldehyde; solvents of ethyl alcohol, methylene chloride and

$$CCl_2—CClF_2$$

and a catalyst such as trifluoracetic acid, the deterrent composition crosslinking upon curing at 50–60° C. for a period of about 5–24 hours.

3,682,727

IGNITER CHARGE FOR PROPELLANT COMPOSITIONS AND ROCKET PROPELLANT CHARGES

Walter Heinzelmann, Sarninghauser, Karl-Egon Flach, Cologne Dellbruch, Alfred Voss, Hagen, Westphalia, and Heinz Kroschel, Oberlar, Germany, assignors to Dynamit Nobel Aktiengesellschaft, Troisdorf, Germany

No Drawing. Filed Aug. 5, 1969, Ser. No. 847,701
Claims priority, application Germany, Aug. 5, 1968, P 17 71 943.6
Int. Cl. C06c *9/00*
U.S. Cl. 149—19 11 Claims

The present disclosure relates to an igniter charge for propellant powder charges and rocket propellant charges comprising a hot particle igniter mass containing a binder selected from the group consisting of polyepoxides, polyesters, polyurethanes, polybutadienes, polyolefins, silicones, cellulose derivatives, and rubber, an oxygen donor selected from the group consisting of ammonium and alkali metal nitrates and perchlorates and a hot particle donor selected from the group consisting of at least one metal or metal oxide of the elements of Groups I to VIII of the Periodic Table.

3,682,728

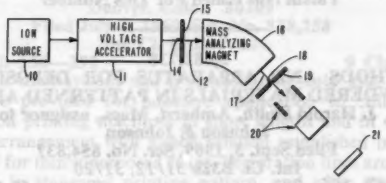
Patent Not Issued For This Number

3,682,729

METHOD OF CHANGING THE PHYSICAL PROPERTIES OF A METALLIC FILM BY ION BEAM FORMATION AND DEVICES PRODUCED THEREBY

Thomas F. Gukelberger, Jr., Hopewell Junction, and Walter J. Kleinfelder, Fishkill, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 30, 1969, Ser. No. 889,242
Int. Cl. H05k *3/06*
U.S. Cl. 156—13 4 Claims



A deposited metallic film on a substrate is bombarded with high energy ions having an energy of at least 10 kev. with the ions being selected from the group of ions ranging between helium and argon. The selected ions depend upon the metal forming the film and the thickness of the film. This bombardment reduces the yield stress of the film in any area in which the ions strike and is particularly useful to form metallic lands on a semiconductor substrate.

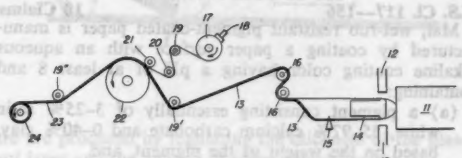
3,682,730

METHOD FOR LAMINATING ORIENTED THERMOPLASTIC FILM TO THERMOPLASTIC FOAM

Donald A. Haase, Penfield, N.Y., assignor to Mobil Oil Corporation

Filed Nov. 14, 1969, Ser. No. 876,814
Int. Cl. B32b *5/20*
U.S. Cl. 156—79 3 Claims

A method for the production of laminates comprising oriented thermoplastic film heat bonded to a thermoplastic foam which comprises extrusion of a thermoplastic foam containing a blowing agent which has a plasticizing action upon the foam material and while the extruded foam still contains residual blowing agent, heat welding an oriented thermoplastic film to the foam. Dis-



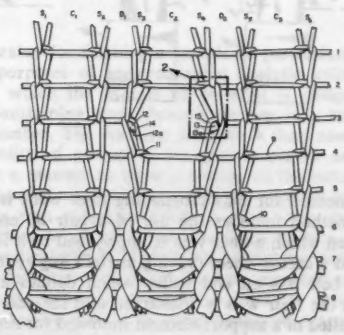
orientation of the oriented film in accord with the present method is eliminated by virtue of the lower heat bonding temperatures necessary to achieve an effective weld by virtue of the presence of the blowing agent-plasticizer material remaining in the foam.

3,682,731

METHOD OF MAKING NON-RUN SPANDEX FABRIC

William F. Morancy, Cumberland, R.I., assignor to Lawson Products, Inc., Pawtucket, R.I.

Original application Apr. 28, 1967, Ser. No. 634,535. Divided and this application Feb. 6, 1970, Ser. No. 9,446
Int. Cl. B32b *31/00*
U.S. Cl. 156—148 9 Claims



Method of making non-run spandex fabric having concatenated loops of spandex yarn and of at least one other yarn which is not spandex, which fabric has true shape stability without loss of elasticity, stretchability, flexibility or fitability, by heating the fabric to a temperature below the tackiness point of the spandex yarn but sufficient to produce fusion between the contacting portions of the spandex yarn only.

3,682,732

Patent Not Issued For This Number

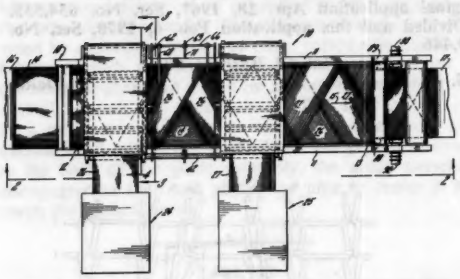
3,682,733
COATED PAPER
Gesienus Smit, Sappemeer, Netherlands, assignor to Scholten-Honig Research N.V., Foxhol, Netherlands
No Drawing. Continuation-in-part of application Ser. No. 683,019, Nov. 14, 1967, now Patent No. 3,591,412. This application Mar. 10, 1971, Ser. No. 123,027
Claims priority, application Japan, Nov. 15, 1966, 41/75,164
Int. Cl. D21h *1/24, 1/28*
U.S. Cl. 117—156 10 Claims

Mat, wet-rub resistant pigment-coated paper is manufactured by coating a paper surface with an aqueous alkaline coating color having a pH of at least 8 and containing:

(a) a pigment consisting essentially of 3–25% satin white, 55–97% calcium carbonate and 0–40% clay, based on the weight of the pigment, and

(b) an at least 0.2% by weight of phosphorus containing, depolymerized starch phosphate ester in an amount effective as a binder for the pigment.

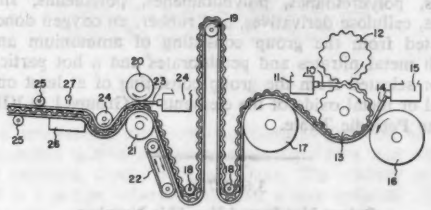
3,682,734
METHOD AND APPARATUS FOR BIAS CROSSLAYING A FIBER WEB
William H. Burger, Neenah, Wis., assignor to Kimberly-Clark Corporation, Neenah, Wis.
Filed July 18, 1969, Ser. No. 843,147
Int. Cl. B32b *31/08;* D04h *11/04*
U.S. Cl. 156—166 8 Claims



A method for bias crosslaying fiber webs is disclosed. The method includes the use of a pair of endless belts between which a fiber web is imprisoned as it is advanced toward a carrier sheet moving at right angles to the belts. Each belt has an end roller which defines a nip from which the fiber web is discharged and the end rollers are journalled in a support element mounted for reciprocation transversely over and across the moving carrier sheet to crosslay the fiber web thereon at a resulting bias angle. A second pair of belts may be provided parallel to the first pair to bias crosslay a second fiber web on the carrier sheet in substantially edge-to-edge relation to the first web. In the preferred embodiment additional webs of material may be deposited on the carrier sheet in longitudinal relation and bonded to the bias crosslaid components. The edges of the composite material may also be cut and stripped away.

3,682,735
Patent Not Issued For This Number

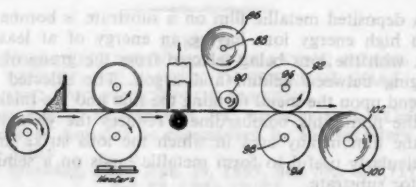
3,682,736
METHOD FOR THE CONTINUOUS MANUFACTURE OF CORRUGATED CARDBOARDS OF SYNTHETIC RESIN
Susumu Akamatsu, Naruto-shi, Japan, assignor of a fractional part interest to Susumu Akamatsu and Mitsubishi Kasei Kogyo Kabushiki Kaisha (also trading as Mitsubishi Chemical Industries Limited), Tokyo, Japan
Filed July 9, 1969, Ser. No. 842,080
Claims priority, application Japan, July 18, 1968, 43/50,661; Aug. 28, 1968, 43/61,007; Sept. 17, 1968, 43/67,113, 43/67,114
Int. Cl. B32f *1/20*
U.S. Cl. 156—210 5 Claims



In manufacturing a corrugated carboard of synthetic resin, a sheet of thermoplastic resin is extruded at a high temperature and corrugated by means of a pair of corrugating rolls maintained at a temperature lower than the extruded sheet and then a second sheet similarly extruded is bonded to the corrugated sheet at a high temperature. After cooling the single faced corrugated cardboard another extruded sheet of thermoplastic resin may be bonded to the opposite side of the corrugated sheet to form a double faced corrugated cardboard.

3,682,737
Patent Not Issued For This Number

3,682,738
METHODS AND APPARATUS FOR DEPOSITING POWDERED MATERIALS IN PATTERNED AREAS
J. Harold Smith, Amherst, Mass., assignor to Johnson & Johnson
Filed Sept. 3, 1969, Ser. No. 854,837
Int. Cl. B32b *31/12, 31/20*
U.S. Cl. 156—283 10 Claims



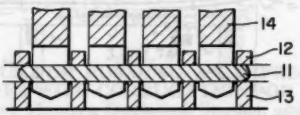
Methods and apparatus for depositing powdered thermoplastic materials in patterned areas on textile or other sheet materials which comprise depositing powdered thermoplastic materials substantially uniformly in over-all fashion on textile or other sheet materials; pressing the powdered thermoplastic materials against the textile or other sheet materials only in the desired patterned areas with sufficient pressure to compact and densify and, if desired, to soften the powdered thermoplastic materials

and to cause it to adhere to the textile or other sheet materials only in the patterned areas without affecting the powdered materials in the areas other than the patterned areas; and removing the powdered thermoplastic materials from the textile or other sheet materials in the areas other than the patterned areas.

3,682,739
METHOD OF SLITTING FOAM RUBBER PRODUCTS

Gunter Horst Tesch and Johannes J. V. Colijn, Fribourg, Switzerland, assignors to Breveteam SA, Fribourg, Switzerland

Filed Apr. 24, 1970, Ser. No. 31,519
Claims priority, application Switzerland, Apr. 25, 1969, 6,466/69
Int. Cl. B32b *31/00*
U.S. Cl. 156—293 **9 Claims**



A method wherein foam material of rubber or plastic is provided with at least two series of slits extending in different directions through the material and at least partly intersecting each other.

3,682,740
METHOD AND MEANS FOR PRE-APPLYING GLUE AND REACTIVATING IT FOR CONTINUOUS FORM COLLATING

Charles V. Newton, 3100 Cherry Creek South Drive, Denver, Colo. 80209

Filed July 1, 1969, Ser. No. 838,258
Int. Cl. B32b *7/14*
U.S. Cl. 156—291 **9 Claims**

A hot melt system and a remoistening cold glue system are provided for adhesive application to collated forms on printing machines in short lengths and in staggered arrangement with alined relation established infrequently for thin superposed strips. Perforation lines are not crossed in staggered printing pattern, and after drying, heat source between two collator rolls softens pre-applied glue to required tackiness and makes bond on following roll. Low solvent resin glue applied in similar pattern on printing machine dries before discharge from printer. Water is applied through metering head disposed between collator rolls for re-moistening and reestablishing its bonding properties.

3,682,741
METHOD OF PREPARING DECORATIVE SURFACE COVERINGS

Charles G. Elliott, Landisville, and David H. Reed, Lancaster, Pa., assignors to Armstrong Cork Company, Lancaster, Pa.

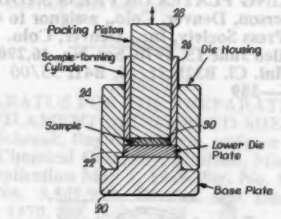
Filed May 23, 1969, Ser. No. 827,226
Int. Cl. B32b *31/00*
U.S. Cl. 156—298 **3 Claims**

A method of producing a floor covering or the like having different degrees of texture on the floor covering surface. The method consists of placing a plastisol layer on a backing sheet. Various size chips are then deposited on the surface of the plastisol. Upon heating, the chips rapidly sink into the plastisol layer to a point where the top surface of the plastisol is approximately level with the top surface of the chips. Different degrees of surface texture are produced by regulating the thickness of the plastisol layer and the volume of chips placed thereon.

3,682,742
APPARATUS FOR PREPARING SPECTROGRAPHIC SAMPLE

Bradner D. Wheeler, 9023 Outlook Drive, Overland Park, Kans. 66207

Filed Apr. 15, 1970, Ser. No. 28,723
Int. Cl. B29j *1/00*
U.S. Cl. 425—109 **6 Claims**



An apparatus for forming a sample of particulate material for purposes of spectrographic analysis utilizes a housing in which the sample of material is compacted into a self-sustaining mass through the use of a tubular forming member. The forming member is then removed and a quantity of protective material is placed around the mass in a manner to leave a portion of the latter uncovered. The protective material and the mass of sample material are then compressed into a rigid body, the uncovered portion of which presents a planar surface, by a pressure piston which is positionable within the housing. After the rigid body is formed the base member of the housing is removed and replaced by a tubular extractor which receives the rigid body upon continued movement of the pressure piston.

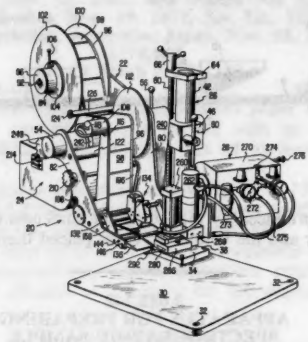
3,682,743
LABELLING MACHINE FOR PRESSURE SENSITIVE LABELS

Robert A. Cleary and Paul R. Mort, Jr., Yonkers, N.Y., assignors to Syncro-Motion Corporation, Yonkers, N.Y.

Filed May 22, 1970, Ser. No. 39,708
Int. Cl. B32b *31/10, 31/20*
U.S. Cl. 156—384 **29 Claims**

A machine feeds a backing strip with labels affixed thereto by pressure sensitive adhesive past a peeling blade. The labels are removed from the backing strip at the peeling blade and are supplied to an applicator which physically moves each label into contact with an object to be labelled. The backing strip then rewinds onto a

take-up reel to form a closed loop with the forwardly feeding strip. If desired, a printing attachment can be



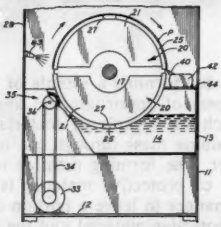
supplied to imprint the labels prior to their arrival at the peeling blade.

3,682,744

APPARATUS FOR STRIPPING AND CLEANING BACKING PLATES OR PRESS SADDLES

Paul L. Person, Denver, Colo., assignor to Catholic Press Society, Inc., Denver, Colo.

Filed June 15, 1970, Ser. No. 46,290
Int. Cl. B32b *31/16*; B41f *35/00*
U.S. Cl. 156—389 **11 Claims**



Disclosed is apparatus for stripping and cleaning a backing plate, such as, an arcuate press saddle, by the process of rotating the saddle past a blade to strip a printing plate therefrom by advancing from a corner diagonally with respect to movement of the saddle, through a bath of adhesive-removing solvent to wash the stripped saddle surface, into contact with a rotating brush to remove solvent and adhesive from the washed saddle surface, and through an airstream to dry the cleaned saddle surface.

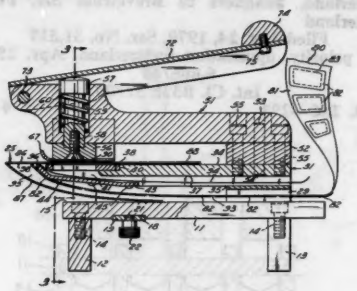
3,682,745

ENVELOPE WINDOW PUNCH

Felton Michael O'Neill, 1241 Bunts Road, Lakewood, Ohio 44107

Filed Oct. 8, 1969, Ser. No. 864,675
Int. Cl. B29d *3/00*
U.S. Cl. 156—423 **2 Claims**

A method and apparatus are disclosed for producing window envelopes from preformed windowless envelopes. Front and rear wall portions of a preformed envelope are separated, and a window opening is punched in one of the wall portions. A transparent window pane is located in the interior of the preformed envelope between the separated wall portions by a flexible carrier web and is removed from the carrier web within the interior of the envelope by passing the carrier web over a guide plate which abruptly changes the direction of travel of the carrier web. The window pane is removed from the carrier web and affixed to the interior surface of the one



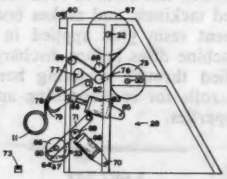
wall portion as the envelope is removed from the punching dies. The window panes are adhesively secured to the carrier web in longitudinally spaced apart relation, and the carrier web is fed into and out of the envelope in a direction substantially parallel to the wall of the envelope to which the window pane is to be affixed.

3,682,746

METHOD AND APPARATUS FOR FABRICATING FLEXIBLE TUBING

James William Helmick, Toledo, Brownell Wesley Goebel, Waterville, and John Marvin Current, Jerry City, Ohio, assignors to Johns-Manville Corporation, New York, N.Y.

Filed June 6, 1969, Ser. No. 842,766
Int. Cl. B65h *81/00*
U.S. Cl. 156—429 **16 Claims**



Flexible tubing is formed by preforming a helix, mounting the helix with its turns oriented in a predetermined manner, applying adhesive to the outer surface of the turns, and winding flexible sheet material around the helix to form an envelope over the helix skeleton. A multiplicity of layers of sheet material can be applied. In fabricating a circular duct, a helix of material of fixed cross-section is supported by a mandrel contacting the turns at spaced points as longitudinal bars spaced 120°. Adhesive is applied by an applicator contacting the outer face of

the helix turns with a wiping or rolling contact through rotation of the mandrel or the applicator or both. A broad contact area as afforded by a flattened outer face on each helix turn, sustains sufficient adhesive to penetrate superposed regions of an overlying thin, porous, flexible sheet wound on the helix and adhesively bond another layer of material wound thereover. Insulated tubing can have a plurality of wound layers of insulation in continuous sheet form with the single application of adhesive to bond substrate and at least the first layer of insulation to the helical skeleton and a jacket to retain the outer layers.

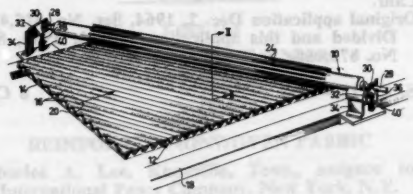
Tubing is produced on a multistation apparatus. A composite helix spacer rod and expandable mandrel shaft has a pivoted mounting end and an opposite end selectively coupled to a first station comprising a helix magazine and a spacer rod drive, to a second station comprising a mandrel drive, and to a third station for jacketing the assembled duct and unloading it from the mandrel shaft. A rack sustaining roll goods and the adhesive applicator for cooperative manipulation relative to the mandrel mounted helix is located at the second station.

3,682,747

APPARATUS FOR FORMING AN IMPREGNATED PAPER WEB WITH CORRUGATIONS OR PLEATS

Carl Georg Munters, Stocksund, Sweden, assignor to Carl Munters & Co., Sollentuna, Sweden

Filed Mar. 10, 1970, Ser. No. 18,097
Claims priority, application Sweden, Mar. 11, 1969, 3,352/69
Int. Cl. B31f *1/00*
U.S. Cl. 156—459 **4 Claims**



An apparatus for continuously forming an impregnated paper web with corrugations or pleats extending diagonally to the edges of the web in an elongated form movable along a straight path and formed with grooves extending in the same diagonal direction and entered by projections from a forming head rotatable about an axis parallel to said diagonal grooves, said projections being disposed in such a manner that at least one projection always retains a corrugation or pleat formed by the same in the paper web pressed against the form so as to prevent a sliding back movement of the web during formation of the next following corrugation.

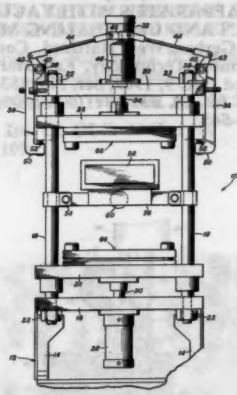
3,682,748

HEAT PRESS MACHINE AND METHOD

Jack E. Kimball, Fremont, Ohio, assignor to Borg-Warner Corporation

Filed June 19, 1970, Ser. No. 47,692
Int. Cl. B32b *31/00*; B30b *15/34*
U.S. Cl. 156—499 **8 Claims**

A machine for heat sealing plastic parts has work supports movable toward each other, first to a heating position where the parts contact heating means, toward each other where the heated parts contact one another at which time pressure is applied to join the contacting



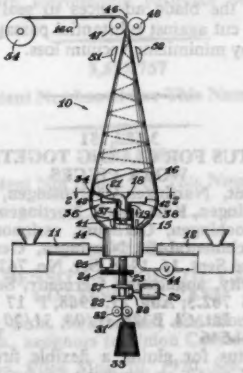
parts. The work supports are air platens which yield under the sealing pressure. The work is held on vacuum chucks for heating and sealing.

3,682,749

APPARATUS FOR THE PREPARATION OF FILAMENT REINFORCED SHEET

Walter J. Schrenk, Bay City, Mich., assignor to The Dow Chemical Company, Midland, Mich.

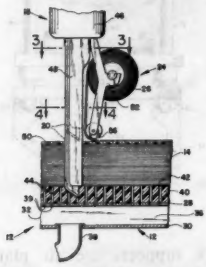
Original application May 1, 1969, Ser. No. 820,876, now Patent No. 3,589,958. Divided and this application Sept. 24, 1970, Ser. No. 75,138
Int. Cl. B29f *3/00*
U.S. Cl. 156—500 **5 Claims**



Filament reinforced plastic sheet of laminar construction is prepared by extruding a tube by the trapped bubble process, centrifugally depositing a filamentary reinforcing material on the inner heat plastified surface of the bubble

as it is extruded, collapsing the bubble and sealing opposed surfaces together, thereby entrapping the filamentary reinforcing.

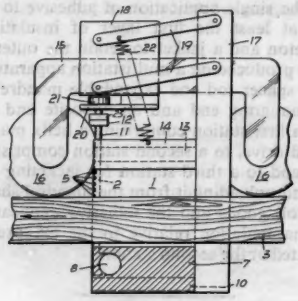
3,682,750
CUTTING APPARATUS WITH VACUUM HOLD-DOWN AND CUT SEALING MEANS
Heinz Joseph Gerber, West Hartford, Conn., assignor to Gerber Garment Technology, East Hartford, Conn.
Filed Dec. 9, 1969, Ser. No. 883,438
Int. Cl. B32b *31/08, 31/06*
U.S. Cl. 156—545 **3 Claims**



Apparatus particularly adapted for cutting a porous workpiece such as, for example, a fabric layup or the like and having a vacuum hold-down table including a workpiece supporting surface and a sheet or panel of thin flexible substantially air-impervious sheet material for substantially covering the exposed surface of a workpiece supported on the table surface. The sheet material cooperates with the vacuum table to draw the workpiece toward the supporting surface and to apply compacting force thereto. A reciprocably movable cutter or blade is supported for movement relative to the table surface to advance in cutting engagement with the sheet material and the workpiece to form a cut therein. A payoff reel mounted on the blade supporting means carries the roll of sealing tape which is dispersed in overlying relation to the cut as the blade advances to seal an associated portion of the cut against substantial passage of air therethrough thereby minimizing vacuum loss.

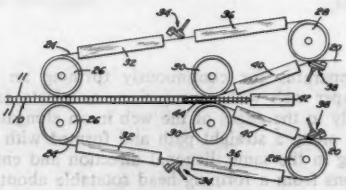
3,682,751
APPARATUS FOR GLUING TOGETHER TWO WORK PIECES
Fritz Gebhardt, Nurtingen-Oberensingen, Otto Kaltenmark, Metzingen, Kurt Reich, Nurtingen, and Siegfried Keusch, Plochingen, Germany, assignors to Karl M. Reich Maschinenfabrik, Nurtingen, Germany
Filed Sept. 16, 1968, Ser. No. 762,177
Claims priority, application Germany, Sept. 19, 1967, P 16 53 702.3; Aug. 21, 1968, P 17 28 078.3
Int. Cl. B32b *31/08, 31/20*
U.S. Cl. 156—546 **16 Claims**

An apparatus for gluing a flexible first work piece, preferably of wood or synthetic material, to a second work piece with at least one pressure roll for pressing together the two work pieces, which comprises a glue feeding means forming at least one conveyor device and a nozzle body adapted to enter the intermediate space between surfaces of the two work pieces, the surfaces pointing to each other, for applying glue material. A channel for feeding the glue material disposed adjacent the forward end face of the nozzle body pointing to the space to be glued. One end of the channel is connected with the glue feeding means. The nozzle body has at least one



nozzle opening terminating in the channel for application of the glue material to the surface of at least one of the work pieces.

3,682,752
APPARATUS FOR MAKING PLASTIC VENETIAN BLIND TAPE
Edwin J. Hunter, 810 S. University Drive 92507; George H. Starrett, 3545 Spruce St. 92507; and Davison B. Swing, 5414 Provence Place 92506, all of Riverside, Calif.
Original application Dec. 2, 1964, Ser. No. 415,400. Divided and this application June 2, 1969, Ser. No. 870,088
Int. Cl. B32b *31/04*
U.S. Cl. 156—552 **8 Claims**



A pair of movable carriers are each trained around three wheels, forming two similar obtuse-angled triangles arranged side-by-side. A first coating head spreads a thin layer of plastisol on each band between two of said wheels, and a first oven fuses the plastisol before it reaches one of said two wheels. A second coating head between said one wheel and the wheel situated at the obtuse angle lays a plurality of laterally spaced threads on the plastic strip and additionally covers the threads with a thin layer of plastisol. A second oven fuses the second coating before said obtuse angle wheel is reached. Ladder rungs are inserted between and fused to the strips in the stretch where the triangles are arranged side-by-side and the carriers run parallel.

3,682,753

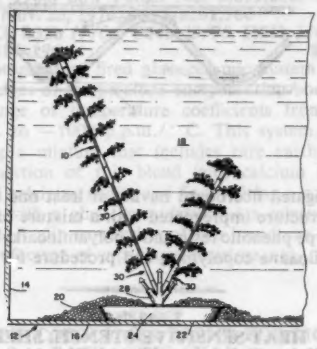
ARTIFICIAL AQUARIUM PLANT SIMULATING A NATURAL PLANT

Allan H. Willinger, Maywood, N.J., assignor to Metaframe Corporation, Maywood, N.J.

Filed Jan. 26, 1970, Ser. No. 5,516

Int. Cl. A01n 3/00; A41g 1/00; A47g 7/00

U.S. Cl. 161—18 10 Claims



An artificial aquarium plant simulating the appearance of natural plants. The artificial plant comprises a bottom receptacle member with a detachable plant member.

3,682,754

Patent Not Issued For This Number

3,682,755

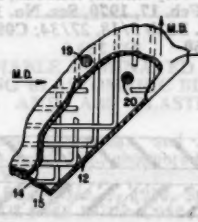
REINFORCED NONWOVEN FABRIC

Charles A. Lee, Knoxville, Tenn., assignor to International Paper Company, New York, N.Y.

Filed Jan. 29, 1970, Ser. No. 6,688

Int. Cl. B32b 5/12, 31/02

U.S. Cl. 161—57 18 Claims



A reinforced laminated nonwoven fabric comprising first and second web plies overlaid with their respective machine directions disposed at an angle with respect to each other and with respect to the longitudinal and transverse directions of the fabric. The first and second web plies are reinforced by respective first and second plies of reinforcing filaments, the filaments of each filament ply being generally aligned with the machine direction of the respective web ply. The plies are bonded one to another.

3,682,756

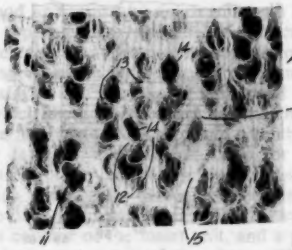
NONWOVEN FABRIC COMPRISING ROSEBUDS BOUNDED BY BUNDLES

Frank Kalwaites, Somerville, N.J., assignor to Johnson & Johnson

Filed Mar. 24, 1970, Ser. No. 22,288

Int. Cl. D04h 1/46, 1/70

U.S. Cl. 161—109 4 Claims



A nonwoven fabric having a plurality of patterns of groups of fiber segments that alternate and extend throughout the fabric. One pattern is disposed in discontinuous portions of the fabric, each of which portions includes at least one pivotal packing of fiber segments protruding out of the plane of the fabric and a plurality of flat, ribbon-like groups of aligned fibers extending outwardly from the pivotal packing. The discontinuous portions of the fabric are bounded or surrounded by yarn-like bundles of fiber segments which lie in continuous portions of the fabric between the discontinuous portions and constitute a second pattern. The ribbon-like groups of fiber segments connect the pivotal packings with each other and with surrounding yarn-like bundles of fiber segments.

3,682,757

Patent Not Issued For This Number

3,682,758

Patent Not Issued For This Number

3,682,759

LOW DENSITY PYROLYTIC CARBON COATING PROCESS

Hans Beutler, Sulz, Switzerland, and Ronald L. Beatty, Seattle, Wash., assignors to Union Carbide Corporation

No Drawing. Filed Mar. 10, 1970, Ser. No. 18,286

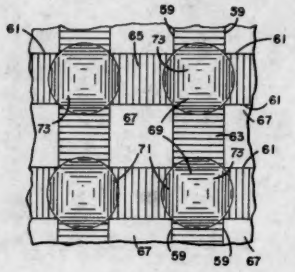
Int. Cl. C21c 3/06; C01b 31/04

U.S. Cl. 117—46 CG 6 Claims

A process for depositing a low density, highly porous carbon coating on nuclear reactor fuel particles by the thermal decomposition of undiluted exothermic-type cracking gases wherein temperature control of the coating process is obtained by alternately using, as the particle

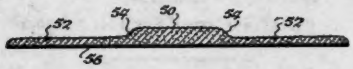
fluidizing medium, the exothermic-type cracking gas and an inert gas to maintain the temperature of the reaction zone between about 1100° C. and 1250° C.

3,682,760
ORIENTED WEBS AND METHOD FOR MAKING THE SAME
Theodore H. Fairbanks, R.D. 1, Liverpool, Pa. 17045
Continuation-in-part of application Ser. No. 784,378, Dec. 17, 1968. This application Oct. 8, 1970, Ser. No. 79,050
Int. Cl. B29c *17/02, 17/04;* B29d *7/24;* B32b *3/30*
U.S. Cl. 161—123 8 Claims



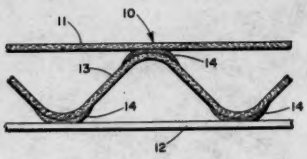
Manufacture of an unbroken polymeric web or film having a predetermined pattern of generally unoriented and uniaxially oriented regions.

3,682,761
FIBROUS WEB
Charles Allen Lee and Warren R. Furbeck, Knoxville, Tenn., and Thomas S. Bartley and Jeremy Beaty, Toronto, Ontario, Canada, assignors to Canadian International Paper Company, Montreal, Quebec, Canada
Original application Nov. 10, 1965, Ser. No. 507,089, now Patent No. 3,501,813, dated Mar. 17, 1970. Divided and this application July 28, 1969, Ser. No. 870,895
Int. Cl. B32b *3/02*
U.S. Cl. 161—124 2 Claims



An elongated air-laid web is formed with a single layer of loose fibrous material having a longitudinally extending central portion and integral longitudinally extending portions flanking the central portion. The web has a generally stepped configuration with a greater average thickness for the central portion than for the side portions. A greater quantity of loose fibrous material is present in a vertical cross section through the thick central portion than through a corresponding vertical cross section in the flanking portion.

3,682,762
RIGID-WHEN-WET BOXBOARD
John R. Le Blanc, Wilbraham, Mass., assignor to Alton Box Board Company, Alton, Ill., and Monsanto Company, St. Louis, Mo.
Filed Feb. 25, 1971, Ser. No. 119,008
Int. Cl. B32b *3/28, 9/06, 29/06*
U.S. Cl. 161—133 7 Claims

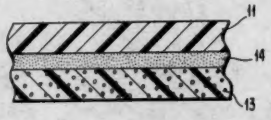


Corrugated fiberboard having at least one sheet of the board structure impregnated with a mixture of a modified resole type phenolic resin and a polyaminoalkyl-substituted organosiloxane copolymer, and procedure for making.

3,682,763
HEAT-SENSITIVE STENCIL SHEET
Keishi Kubo, Yokohama-shi, and Kiyoshi Sakai, Tokyo, Japan, assignors to Kabushiki Kaisha Ricoh, Tokyo, Japan
No Drawing. Filed Dec. 3, 1969, Ser. No. 881,880
Claims priority, application Japan, Dec. 20, 1968, 43/93,085
Int. Cl. B41n *1/24, 15/00*
U.S. Cl. 161—159 6 Claims

A heat-sensitive stencil sheet which consists of a porous thin supporting paper and a film consisting of a thermoplastic resin and affixed to one surface of said supporting paper with an adhesive, said adhesive containing a visibly reactive heat-sensitive component; and a heat-sensitive stencil sheet which consists of a porous thin supporting paper, a film consisting of a thermoplastic resin and affixed to one surface of said supporting paper with an adhesive, and a coating comprising a visibly reactive heat-sensitive component and provided on the surface of said thermoplastic resin film.

3,682,764
HIGH IMPACT RIBBONS
Hugh T. Findlay, Sterritt R. Fuller, Jr., and Jerry F. Stone, Lexington, Ky., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Feb. 17, 1970, Ser. No. 12,007
Int. Cl. B32b *5/18, 27/34;* C09j *3/12*
U.S. Cl. 161—160 1 Claim



High impact ribbons comprise a transfer layer of a porous resin matrix containing expressible ink and a second polymer film backing layer coextensive with and bonded to the back surface of the transfer layer by a thin intermediate layer of elastomeric adhesive polymer.

3,682,765

Patent Not Issued For This Number

3,682,766

LOW TEMPERATURE FIRED RARE EARTH TITANATE CERAMIC BODY AND METHOD OF MAKING SAME

Galeb H. Maher, Adams, Mass., assignor to Sprague Electric Company, North Adams, Mass.

Continuation-in-part of applications Ser. No. 626,245, Mar. 27, 1967, now abandoned, and Ser. No. 767,046, Sept. 26, 1968, now Patent No. 3,619,220. This application Nov. 23, 1970, Ser. No. 91,706

Int. Cl. B32b *17/06*; C04b *33/00*; H01b *1/06*

U.S. Cl. 161—196 8 Claims

A low temperature fired glass-ceramic system encompassing a series of temperature compensating bodies that cover a range of temperature coefficients from +100 p.p.m./° C. to −1000 p.p.m./° C. This system consists of calcining a mixture that includes rare earth oxides, mixing a portion of this blend with calcium titanate, $CaTiO_3$ and calcining again, and finally firing a portion of this calcine with a glass formulation at a relatively low temperature. A slip suspension of this blend can be used for the manufacture of capacitors, resistors, etc.

3,682,767

ETHYLENE COPOLYMER BLEND FOR LIQUID PACKAGING FILM

Arthur Wray Britton, Wilmington, Del., George Wilson Luckey, Richmond, Va., Glenn William Mansell, Orange, Tex., and John Douglas Snyder, Richmond, Va., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Oct. 2, 1970, Ser. No. 77,689

Int. Cl. B32b *27/34*; C08f *37/18*; C08j *1/40*

U.S. Cl. 161—227 9 Claims

A plastic film having an improved melt strength that assists in effecting reliable heat seals, particularly when the film is used in a make-and-fill process for packaging liquids, such as milk. The film is prepared from a blend of (a) 90–50 weight percent of a random copolymer of ethylene and an olefinic unsaturated monomer wherein the olefinic unsaturated monomer is present in the amount of about 2–10 weight percent of the copolymer and the copolymer has a melt index of about .2 to 1.0 and a melting point of 95–110° C., and (b) 10–50 weight percent of a linear copolymer of ethylene and an olefinic unsaturated monomer said linear copolymer having a density of about .93 to .96 and a melt index of about .3 to 2.5. Optionally, this film can be coated with a vinylidene chloride copolymer composition or laminated to other films forming a composite film structure.

3,682,768

THERMOFORMABLE LAMINATED SHEET MATERIAL HAVING ELASTOMERIC BLOCK COPOLYMER CORE AND ABS PLASTIC COVERING LAYERS

Gerald E. Adams, Mishawaka, and Edward C. Van Buskirk, South Bend, Ind., assignors to Uniroyal, Inc., New York, N.Y.

No Drawing. Filed Mar. 9, 1970, Ser. No. 17,922

Int. Cl. B32b *27/08*; C08f *15/00*

U.S. Cl. 161—253 5 Claims

A thermoformable laminated sheet material, characterized by high impact strength at low temperature, has a core layer made of an elastomeric block copolymer of styrene and butadiene, and outer covering layers of ABS plastic.

3,682,769

Patent Not Issued For This Number

3,682,770

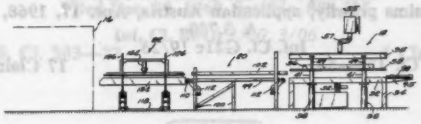
TRANSFERRING A HOT TOP LINER INSERT FROM A FORMING ASSEMBLY TO A DRYER BY A TRANSFER TABLE AND A ROLLOVER TABLE

Anthony J. Varrati, Milwaukee, Wis., assignor to Universal Refractories Corporation, Milwaukee, Wis.

Filed Mar. 12, 1970, Ser. No. 19,051

Int. Cl. D21j *3/00*

U.S. Cl. 162—399 11 Claims



The method and apparatus for forming an insert liner unit of the type having a plurality of refractory panels hingedly interconnected by a flexible heat destructible material. The apparatus includes a mold or forming assembly, a transfer table, a roll-over table and a transfer screen on which the unit is formed and which is used to transport the insert unit from the mold assembly through the transfer table to the roll-over table for depositing on a dryer screen. The mold assembly includes a vacuum box on which the transfer screen is supported, a mold which is movable into engagement with the vacuum box to define the contour of the insert unit, and a pressurized air box to force water out of the slurry. The mold is filled with a predetermined amount of refractory slurry which is de-watered through the transfer screen to form a semi-rigid insert unit on the transfer screen. The transfer screen is automatically moved through the transfer table and into the roll-over table where the insert unit is transferred from the transfer screen to the dryer screen.

3,682,771

EMERGENCY NUCLEAR REACTOR SHUTDOWN SYSTEMS

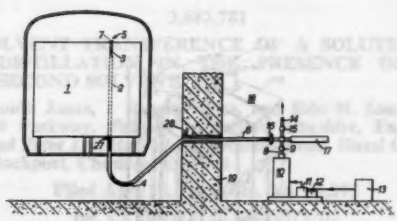
John Charles Bennett, Great Bookham, Leatherhead, England, assignor to Atomic Power Constructions Limited, Surrey, England

Filed Nov. 18, 1968, Ser. No. 776,446

Claims priority, application Great Britain, Nov. 30, 1967, 54,503/67

Int. Cl. G21c *7/08*

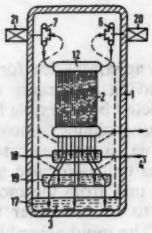
U.S. Cl. 176—35 3 Claims



An emergency shut-down system for a gas-cooled, graphite-moderated reactor comprises a U-shaped tube with one limb located within the core and the other located externally thereof. Inside the tube for movement therein is a first column of spheres of neutron absorbing material. Connected to the external limb of the tube is a reservoir for a second column of spheres of non-neutron absorbing material. The two columns are in endwise contact inside the tube. When the second column of spheres is

released, its greater weight urges the first column into the reactor core and retains it there.

3,682,772
STEAM GENERATOR FOR POWER PLANTS HEATED BY NUCLEAR ENERGY
Walter Bredtschneider, Erlangen, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany
Filed Apr. 15, 1969, Ser. No. 816,290
Claims priority, application Austria, Apr. 17, 1968, A 3,730
Int. Cl. G21c *19/28*
U.S. Cl. 176—54 17 Claims

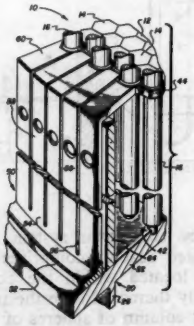


Steam generator for power plants heated by nuclear energy includes a reactor core, a pressure housing surrounding the reactor core and having inner space for receiving a supply of feedwater therein, means for passing steam through the reactor core for superheating the steam, and means for heating feedwater located in the inner space with part of the superheated steam so as to turn the feedwater into steam.

3,682,773

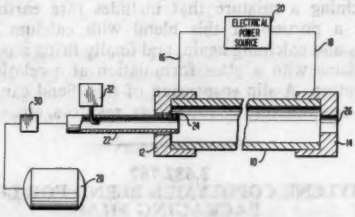
Patent Not Issued For This Number

3,682,774
CORE CLAMPING SYSTEM FOR A NUCLEAR REACTOR
Frank R. Beyer, Woodland Hills, Calif., assignor to North American Rockwell Corporation
Filed Sept. 26, 1969, Ser. No. 861,302
Int. Cl. G21c *9/00*
U.S. Cl. 176—87 6 Claims



A core clamping system for a nuclear reactor that utilizes a cylinder connected to a core support structure of the reactor and which is slotted axially to develop a plurality of cantilever beam-spring segments that act upon the core elements at a determined clamping plane to accommodate for expansion and contraction of the reactor core and thereby induce a negative contribution to the power coefficient of the nuclear reactor.

3,682,775
METHOD FOR HEATING HYDROGEN GAS
Aristid V. Grosse, Haverford, Pa., assignor to Reynolds Metals Company, Richmond, Va.
Filed Oct. 11, 1968, Ser. No. 766,799
Int. Cl. G21c *19/00*
U.S. Cl. 176—40 10 Claims



To reduce degradation of refractory carbides exposed at high temperatures to hydrogen gas, such as in a furnace or nuclear reactor environment, a hydrocarbon which is gaseous at that temperature is admixed with the hydrogen. Suitable hydrocarbons include methane, ethylene, and acetylene.

3,682,776
PRESERVATION OF ORGANS, TISSUES, AND FOODSTUFFS BY MEANS OF BIOLOGICAL PROTEASE INHIBITORS
Ekkehard Grundmann and Gunther Schmidt-Kastner, Wuppertal-Elberfeld, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed Feb. 18, 1970, Ser. No. 12,429
Claims priority, application Germany, Feb. 27, 1969, P 19 09 965.1
Int. Cl. A01n *1/02*; A23b *1/14*
U.S. Cl. 195—1.7 11 Claims

Organs, particularly those intended for use in transplantations, such as the human liver, as well as tissues and foodstuffs are preserved by contact with biological protease-inhibitors, such as kallikrein-trypsin inhibitor or potato inhibitor, preferably in the form of an aqueous solution.

3,682,777
PROCESS FOR PRODUCING PENICILLIN DERIVATIVES
Takashi Nara, Tokyo, Masanaru Misawa, Kawasaki-shi, and Ryo Okachi, Machida-shi, Japan, assignors to Kyowa Hakko Kogyo Co., Ltd., Tokyo, Japan
No Drawing. Filed Sept. 9, 1969, Ser. No. 856,480
Claims priority, application Japan, Sept. 18, 1968, 43/66,879; Oct. 8, 1968, 43/72,874
Int. Cl. C12d *9/00*
U.S. Cl. 195—36 P 23 Claims

α-Aminobenzyl penicillin or p-aminobenzyl penicillin is produced by an enzymatic reaction. A pencillin or 6-amino-penicillanic acid is reacted with α-aminophenyl acetate or p-aminophenyl acetate, or a derivative there-

of, in the presence of an enzyme obtained by culturing a microorganism of the genus Pseudomonas, Arthrobacter, Corynebacterium, Micrococcus, Brevibacterium, Mycobacterium, Nocardia, Kluyvera, Rhodopseudomonas or Streptomyces under aerobic conditions in a suitable nutrient medium.

3,682,778

PRODUCTION OF MICROBIAL CELL-LYTIC ENZYMES

Masanobu Kawai and Noboru Mukai, Machida-shi, Japan, assignors to Kyowa Hakko Kogyo Co., Ltd., Tokyo, Japan

Filed May 27, 1969, Ser. No. 828,316
Claims priority, application Japan, June 28, 1968, 43/44,608
Int. Cl. C07g *7/028*
U.S. Cl. 195—66 R **17 Claims**

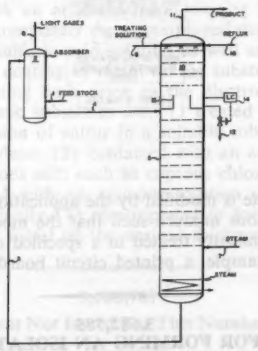
Cell-lytic enzymes capable of dissolving a wide range of microorganisms, including yeasts and molds, are produced by culturing microorganisms belonging to the genus Coprinus in a suitable nutrient medium and recovering the cell-lytic enzymes from the resultant culture liquor. *Coprinus macrorhizus* var. *microsporus, Coprinus radians* and *Coprinus micaceus* are exemplified. The addition of a plant hormone to the medium serves to accelerate the production of enzyme.

3,682,779

REMOVAL OF CARBONYL COMPOUNDS, RESIDUAL OXYGEN AND OTHER IMPURITIES FROM HYDROCARBON DEHYDROGENATION EFFLUENT

Ronald E. Ritter and Thomas Hutson, Jr., Bartlesville, Okla., assignors to Phillips Petroleum Company

Filed Sept. 19, 1969, Ser. No. 859,387
Int. Cl. B01d *3/34, 3/38*
U.S. Cl. 203—7 **6 Claims**



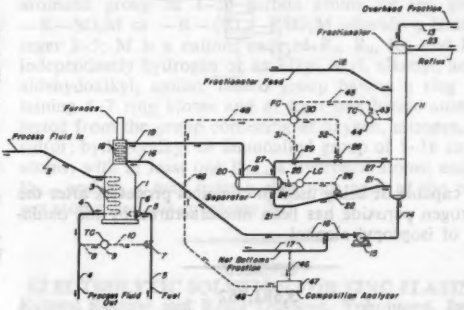
Carbonyl compounds and residual oxygen are removed from hydrocarbon dehydrogenation effluent containing rich oil stripper overhead vapors, prior to condensing hydrocarbon product, with water solution spray, e.g., 1 weight percent KOH, to remove carbonyl compounds and 1 weight percent bisulfite or nitrite solution to remove oxygen and organic acids. A combination of agents can be used. The water solution and removed materials along with steam condensate are removed from a suitable tray in the stripper. The C_4 or C_5 olefins contained in dehydrogenation effluent after absorption into an oil are recovered therefrom in a stripper to which the spray is fed.

3,682,780

FRACTIONATOR REBOILING BY UTILIZING CONVECTION HEAT

Newt M. Hallman, Mount Prospect, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.

Filed Dec. 29, 1969, Ser. No. 888,305
Int. Cl. B01d *3/00, 3/06*
U.S. Cl. 203—22 **4 Claims**



Process and system for reboiling a fractionation column by heat exchange with combustion gas in the convection section of a direct fired furnace, wherein the rate of combustion within said furnace is controlled responsive to the heat input demand of a process fluid being heated within the radiant section of the furnace, and wherein the process fluid is independent of the fractionation column reboiling process. Fractionator bottoms liquid is reboiled within the convection coil and separated into heated liquid and heated vapor. The heated liquid is returned to the column by level control while the heated vapor is returned to the column at a rate of flow controlled to maintain the column under thermal equilibrium.

3,682,781

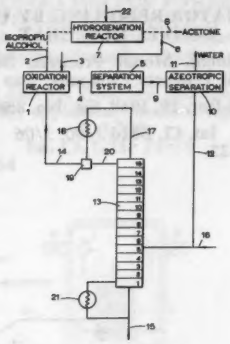
SOLVENT TRANSFERENCE OF A SOLUTE BY DISTILLATION IN THE PRESENCE OF A SECOND SOLVENT

Kenneth Jones, 1 Regent Close, and Eric H. Joscelyne, 19 Parkway, both of Wilmslow, Cheshire, England, and Peter J. J. Harvey, 107 Chester Road, Hazel Grove, Stockport, Cheshire, England

Filed Apr. 17, 1970, Ser. No. 29,392
Int. Cl. B01d *3/40;* C01b *15/02*
U.S. Cl. 203—60 **10 Claims**

A process for transferring hydrogen peroxide dissolved in at least one first solvent (e.g. a mixture of isopropyl alcohol and a small amount of acetone) to at least one second less volatile solvent (e.g. an ester solvent such as n-propyl or n-pentyl acetate) is described, whereby the solution in said first solvent is introduced at the top of a fractionation zone, said second solvent is introduced at the bottom of said zone and—when equilibrium conditions are reached—the hydrogen peroxide dissolved in said second solvent leaves said zone at its bottom while said first sol-

vent leaves at the top of said zone; the process is especially applicable to the production of a hydrogen peroxide solu-



tion capable of being used in chemical processes after the hydrogen peroxide has been manufactured by the oxidation of isopropyl alcohol.

3,682,782

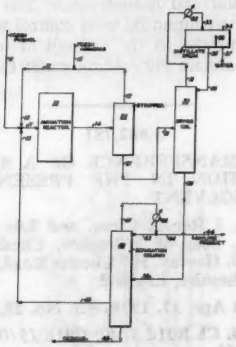
REDUCED PRESSURE DISTILLATION PROCESS FOR RECOVERING ANILINE FROM PHENOL-ANILINE MIXTURES

Chai Y. Choo, Westwood, N.J., assignor to Halcon International Inc.

Filed July 11, 1968, Ser. No. 744,056

Int. Cl. B01d *3/10;* **C07c** *85/16*

U.S. Cl. 203—91 **2 Claims**



High purity aniline is recovered from phenol-aniline mixtures containing more than one mole of aniline per mole of phenol by subjecting the aniline-phenol mixture to distillation at a pressure below about 600 mm. Hg. Recovery of aniline from mixtures containing water in addition to phenol and aniline is also possible by a distillation sequence involving removal of water by azeotropic distillation prior to separation of aniline from phenol.

3,682,783

METHOD FOR COULOMETRIC KARL FISCHER TITRATION

Harald Dahms, Ossining, N.Y., Gabor B. Levy, Westport, Conn., and David M. Seltzer, Little Neck, N.Y., assignors to Photovolt Corporation, New York, N.Y.

No Drawing. Filed Mar. 15, 1971, Ser. No. 124,534

Int. Cl. G01n *27/44*

U.S. Cl. 204—1 T **4 Claims**

An improved reagent composition for coulometric titration of water by the Karl Fischer reaction comprises iodine, pyridine, sulfur dioxide and an inert organic solvent, the sulfur dioxide being present in a concentration of about 25 to about 50 percent by weight, and conveniently in about a 30-fold molar excess over the iodine. The reagent composition provides rapid coulometric titrations with minimal cycling at the endpoint.

3,682,784

PROCESS FOR FORMING A CONDUCTIVE COATING ON A SUBSTRATE

Robert James Ryan, Trenton, N.J., Stokes Fenimore Burtis, Swarthmore, Pa., and John Thomas Grogan, New Whiteland, Ind., assignors to RCA Corporation

Continuation-in-part of application Ser. No. 30,552, Apr. 21, 1970. This application Mar. 30, 1971, Ser. No. 129,563

Int. Cl. C23b *5/48, 5/60*

U.S. Cl. 204—15 **17 Claims**

COAT WITH THERMO-SETTING RESIN IN UNCURED STATE
HEAT TO DRIVE OFF SOLVENT AND MOISTURE
ABRADE COATED SURFACE
TREAT WITH AN AQUEOUS SOLUTION
TREAT ABRADED SURFACES WITH OXIDIZED CONDITIONER
SENSITIZE CONDITIONED SURFACES
ACTIVATE SENSITIZED SURFACES
CHEMICALLY DEPOSIT LAYER OF CONDUCTIVE MATERIAL
APPLY NEGATIVE REPRESENTATION OF DESIRED CIRCUIT PATTERN
ELECTROPLATE
REMOVE PATTERN AND PORTIONS OF CONDUCTIVE LAYER COVERED THEREBY
ADVANCE TO FINAL CURE

A substrate is modified by the application of a thermosetting resinous mixture such that the modified substrate may be chemically treated in a specified manner to provide, for example, a printed circuit board.

3,682,785

PROCESS FOR FORMING AN ISOLATED CIRCUIT PATTERN ON A CONDUCTIVE SUBSTRATE

Robert Ritter Russo, Indianapolis, Ind., assignor to RCA Corporation

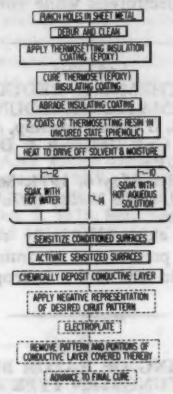
Filed Mar. 30, 1971, Ser. No. 129,392

Int. Cl. C23b *5/48, 5/60*

U.S. Cl. 204—15 **13 Claims**

A metal plate with punched through holes is used as the substrate for a printed circuit board by applying a first coating of an epoxy polymer from a fluidized bed of epoxy powder and then cured thereon. The cured epoxy coating is then abraded. A second and third coating of a phenolic mixture is applied over the first coat by dipping and drying respectively in sequence in a liquid tank of a phenolic mixture. The double layer of partially cured

phenolic mixture is abraded and soaked with water or chemically treated with a mild acidic aqueous solution


PUNCH HOLES IN SHEET METAL
DEBUR AND CLEAN
APPLY THERMOSETTING INSULATION COATING (EPOXY)
CURE THERMOSET (EPOXY) INSULATING COATING
ABRADE INSULATING COATING
2 COATS OF THERMOSETTING RESIN IN UNCURED STATE (PHENOLIC)
HEAT TO DRIVE OFF SOLVENT & MOISTURE
SOAK WITH HOT WATER
SOAK WITH HOT AQUEOUS SOLUTION
SENSITIZE CONDITIONED SURFACES
ACTIVATE SENSITIZED SURFACES
CHEMICALLY DEPOSIT CONDUCTIVE LAYER
APPLY NEGATIVE REPRESENTATION OF DESIRED CIRCUIT PATTERN
ELECTROPLATE
REMOVE PATTERN AND PORTIONS OF CONDUCTIVE LAYER COVERED THEREBY
ADVANCE TO FINAL CURE

before conventional electroless deposition thereon preparatory to electrolytically depositing a printed circuit of desired configuration.

3,682,786

METHOD OF TREATING PLASTIC SUBSTRATES AND PROCESS FOR PLATING THEREON

Sharon D. Brown, Waterbury, Eugene D. D'Ottavio, Thomaston, John J. Kuzmik, Torrington, and John J. Grunwald, New Haven, Conn., assignors to Macdermid, Incorporated

No Drawing. Filed Feb. 18, 1970, Ser. No. 12,421
Int. Cl. C23b *5/64*
U.S. Cl. 204—30 **30 Claims**

Plastic substrates, such as polypropylene, ABS, etc. are plated with an adherent metal coating in a process which avoids completely the art-employed steps of etching in a chromic-sulfuric acid solution as well as the deposition of a thin coating of metal on the substrate from an electroless plating bath prior to the electrolytic plating operation. Plastic substrates are (1) treated with a solution or dispersion of sulfur in a suitable solvent, such as a trichloroethylene, (2) contacted with an aqueous solution of a cuprous salt; such as cuprous chloride, (3) optionally treated with an aqueous solution of palladium chloride and finally (4) electroplated to form a coating of the desired metal of the desired thickness.

3,682,787

Patent Not Issued For This Number

3,682,788

COPPER ELECTROPLATING

Otto Kardos, Ferndale, Donald Allan Arcilesi, Sterling Heights, Arthur James Tomson, Farmington, and Sylvester Paul Valayil, Detroit, Mich., assignors to M & T Chemicals Inc., New York, N.Y.

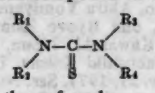
No Drawing. Filed July 28, 1970, Ser. No. 59,034
Int. Cl. C23b *5/20, 5/46*
U.S. Cl. 204—52 R **14 Claims**

In accordance with certain of its aspects, this invention relates to novel compositions and to a process for electrodepositing bright, strongly leveled, ductile copper from an aqueous acidic copper plating bath containing chloride ions and at least one member independently selected from each of the following groups:

(A) a polysulfide compound of the formula

$$R'—(S)_n—R—SO_3M$$

(B) An open-thiourea compound of the formula



and/or tautomers thereof; and

(C) a polyether containing at least 5 ether oxygen atoms per molecule;

wherein each R is independently a divalent aliphatic or aromatic non-heterocyclic group of 1–10 carbon atoms; R′ is hydrogen, a metal cation, a monovalent aliphatic or aromatic group of 1–20 carbon atoms, or the groups $—R—SO_3M$ or $—R—(S)_q—RSO_3M$ wherein q is an integer 2–5; M is a cation; each of R_1, R_2, R_3, and R_4 is independently hydrogen or an alkyl, aryl, alkenyl, acetyl, aldehydoalkyl, amino, hetero group having a ring containing 5–7 ring atoms and at least one hetero-atom selected from the group consisting of oxygen, nitrogen, and sulfur; hydroxyalkyl or aminoalkyl group of 1–16 carbon atoms; with at least one R_{1-4} a hydrogen atoms; each of R_{1-2} and R_{3-4} may form a ring with each of the nitrogen atoms; and n is an integer 2–5.

3,682,789

ELECTROLYTIC SOLUTION FOR ZINC PLATING

Katumi Sakurai and Kenji Odajima, Yokohama, Japan, assignors to Kyowa Hakko Kogyo Co., Ltd., and Hitachi, Ltd., Tokyo, Japan

No Drawing. Filed Jan. 29, 1969, Ser. No. 795,071
Claims priority, application Japan, Jan. 29, 1968, 43/4,976
Int. Cl. C23b *5/12, 5/46*
U.S. Cl. 204—55 R **14 Claims**

An electrolytic solution for zinc plating containing zinc acetate, zinc chloride or zinc sulfate; ammonium chloride; sodium or potassium gluconate; boric acid; and glossing agents. Equal or superior uniform depositability, chromate treatability and corrosion resistance can be obtained with the use thereof.

3,682,790

PROCESS OF PRODUCING ANODIC OXIDE FILMS ON ALUMINUM

Richard D. Orth, Jack G. Surendranath, and Diptiman Chakravarti, Seattle, Wash., assignors to Innova Corporation, Seattle, Wash.

No Drawing. Filed July 29, 1969, Ser. No. 854,341
Int. Cl. C23b *9/02*
U.S. Cl. 204—58 **19 Claims**

An anodic coating on aluminum and its alloys can be obtained by immersing the aluminum as an anode in an aqueous electrolyte containing boric/hydrocarboxylic chelate acid anions to which sulfuric acid or water soluble sulfate or bisulfate salts are added, and passing an electrical current of suitable voltage and current density through the electrolyte solution for a predetermined time.

3,682,791

ELECTROCHEMICAL REDUCTION OF AROMATIC COMPOUNDS

Joseph S. Matthews, O'Hara Township, Allegheny County, Pa., assignor to Gulf Research & Development Company, Pittsburgh, Pa.

No Drawing. Filed May 6, 1971, Ser. No. 141,017
Int. Cl. C07b *29/06*; C07c *5/10*
U.S. Cl. 204—59 R **19 Claims**

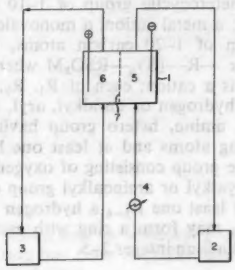
A process for electrochemically reducing aromatic compounds in the presence of a substantially anhydrous sys-

tem containing an amine, an ammonium salt or an inorganic acid and a catalyst, such as BF_3.

3,682,792
PROCESS FOR HYDROELECTROLYTICALLY DIMERIZING ACRYLONITRILE

Maomi Seko, Tokyo, Akira Yomiyama, Shinsaku Ogawa, Tetsuya Miyake, and Ryozo Komori, Nobeoka, and Norito Ogawa, Kawasaki, Japan, assignors to Asahi Kaisei Kogyo Kabushiki Kaisha, Osaka, Japan

Filed Apr. 21, 1971, Ser. No. 135,951
Claims priority, application Japan, Apr. 25, 1970, 45/35,111
Int. Cl. C07b *29/06;* C07c *121/26*
U.S. Cl. 204—73 A 13 Claims

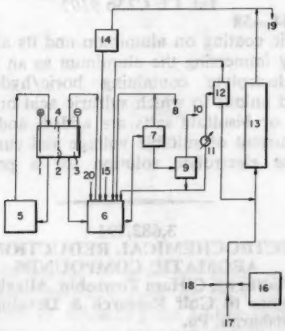


In the process for electrically hydrodimerizing acrylonitrile, the improvement which comprises separating an electrolyte effluent containing an electrolytic supporting salt, acrylonitrile, adiponitrile and electrode reaction-impairing materials into oily and aqueous layers, removing the electrode reaction-impairing materials contained in the oily layer and recycling the resulting oily phase thus purified to the electrolyte.

3,682,793
PROCESS FOR HYDRODIMERIZING ACRYLONITRILE

Maomi Seko, Tokyo, and Akira Yomiyama, Shinsaku Ogawa, Tetsuya Miyake, Toshiro Isoya, and Koji Nakagawa, Nobeoka, Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

Filed Apr. 21, 1971, Ser. No. 135,958
Claims priority, application Japan, Apr. 25, 1970, 45/35,107
Int. Cl. C07b *29/06;* C07c *121/26*
U.S. Cl. 204—73 A 20 Claims



In the process for hydrodimerizing acrylonitrile, the improvement which comprises contacting an electrolyte effluent containing an electrolytic supporting salt, acrylonitrile, adiponitrile and electrode reaction-impairing materials with a cation exchange resin, thereby removing the electrode-reaction impairing materials by adsorption on the resin and circulating the solution having passed through the ion exchange resin into the electrolytic cell for reuse in the electrolysis while conducting the electrolysis.

3,682,794
ELECTROCHEMICAL REDUCTION OF AROMATIC COMPOUNDS

Joseph S. Matthews, O'Hara Township, Allegheny County, Pa., assignor to Gulf Research & Development Company, Pittsburgh, Pa.

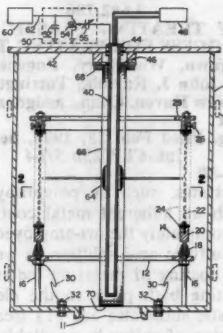
No Drawing. Filed May 6, 1971, Ser. No. 141,018
Int. Cl. C07b *29/06;* C07c *5/10*
U.S. Cl. 204—73 R 20 Claims

A process for electrochemically reducing aromatic compounds in the presence of an amine, an ammonium salt or an inorganic acid and a hydrophobic quaternary amine salt.

3,682,795
SPUTTER COATING OF RAZOR BLADES WITH A BETA-TUNGSTEN TYPE ALLOY

Irwin W. Fischbein, Canton, Ben H. Alexander, Brookline, and Aiyaswami Sastri, Brighton, Mass., assignors to The Gillette Company, Boston, Mass.

Filed July 28, 1969, Ser. No. 845,142
Int. Cl. C23c *15/00*
U.S. Cl. 204—192 3 Claims



A razor blade has a film (in the range of 100–400 A. in thickness) of an alloy of a noble metal and a strengthening metal on its cutting edge, this noble metal alloy film being at least as hard as the underlying blade metal and resistant to corrosion by a concentrated hydrochloric acid.

3,682,796
METHOD FOR TREATING CHROMIUM-CONTAINING BATHS

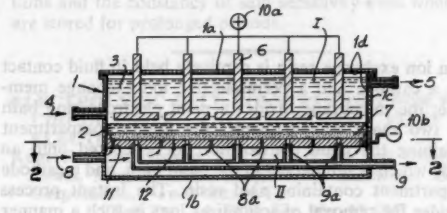
Ram Dev Bedi, 29111 Eastwood, Oak Park, Mich. 48237, and Ronald Dow, 48 Old Driftway, Wilton, Conn. 06897

Original application Jan. 26, 1966, Ser. No. 523,116, now Patent No. 3,616,304, dated Oct. 26, 1971. Divided and this application June 12, 1970, Ser. No. 45,854
Int. Cl. B01k *1/00;* C01g *37/00;* C23b *5/06*
U.S. Cl. 204—97 1 Claim

This invention relates to a process for treating a bath containing trivalent chromium to convert said trivalent chromium to hexavalent chromium comprising maintaining in said bath an electrolyzing cathode of predetermined area the surface of which is in intimate electrical contact

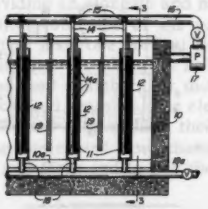
with a material in a low hydrogen overvoltage state selected from the group consisting of etched iron compound, platinum, palladium, rhodium, iridium, and nickel; maintaining in said bath an electrolyzing anode having a surface area at least equal to the area of said electrolyzing cathode; and electrolyzing said bath between said electrolyzing cathode and said electrolyzing anode at an electrolyzing anode current density of at least 0.3 ampere per square decimeter whereby said trivalent chromium in said bath is converted to said hexavalent chromium.

3,682,797
STATIONARY FILM MERCURY CELL
Peter Carr, Youngstown, N.Y., assignor to Great Lakes Carbon Corporation, New York, N.Y.
Filed Oct. 2, 1970, Ser. No. 77,558
Int. Cl. C01d 1/12; C01f 11/14; C22d 1/04
U.S. Cl. 204—99 **20 Claims**



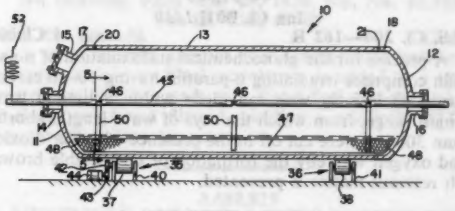
In a conventional mercury cell for producing chlorine and sodium hydroxide from brine, the mercury flows through the cell during electrolysis and picks up sodium to form an amalgam. The amalgam leaves the cell and is pumped or allowed to flow through a seal into a decomposer or "denuder" which is separate from the cell. In the present invention both the electrolysis of the brine and the decomposing of the amalgam are carried out in the same cell. The invention is based upon the utilization of a stationary film or layer of mercury and a non-amalgamable, electrically conductive, porous member such as graphite which is in direct contact with the bottom of the mercury layer.

3,682,798
METHOD AND APPARATUS FOR ELECTROREFINING PARTICULATE METALLIC MATERIALS
William Marvin Tuddenham and David L. Adamson, Salt Lake City, Utah, assignors to Kennecott Copper Corporation, New York, N.Y.
Filed Feb. 20, 1970, Ser. No. 13,088
Int. Cl. C22d 1/16; C23b 5/74
U.S. Cl. 204—108 **8 Claims**



At least one mass of closely associated, discrete particles of a metallic material to be electrolytically refined, such as shotted anode copper or copper precipitates derived by cementation from solution on metallic iron, is confined with an electrolytic cell by solution-permeable walls and is provided with electrical connection to serve as an anode for the cell. An electrolyte is continuously circulated into, through and out of the cell, which is provided with at least one cathode of conventional type. The electrolyte is forcibly injected within the body of the particulate mass at a flow velocity too low to fluidize the particles but high enough to purge such mass of metal cations and to carry them through the interstices of the mass and out through the permeable confining walls, so as to prevent concentration polarization of the anode without unduly increasing power requirements.

3,682,799
FABRICATING AND ELECTROPOLISHING INTERIORS OF CYLINDRICAL VESSELS WITH DOMED ENDS
John F. Jumer, 16 W. 131 Timber Trails Drive, Elmhurst, Ill. 60126
Filed Jan. 29, 1971, Ser. No. 111,046
Int. Cl. C23b 3/06; B01k 3/04
U.S. Cl. 204—129.35 **4 Claims**



A method of fabricating cylindrical vessels having domed or necked ends, with each end having at least a protruding center access port or nozzle, and providing the interior surfaces of the vessel including the access ports or nozzles with electropolished surfaces. The interior surfaces of the domed ends, including the access ports or nozzles thereon, are first polished and then assembled by welding to the opposite ends of the main cylindrical body. The welds are usually ground smooth on the interior and then a pendant cathode immersed in a shallow bath of electropolishing solution serves to polish the inner surface of the cylindrical body including the weld areas as the vessel is slowly rotated while supported in a generally horizontal position.

3,682,800
METHOD FOR PRODUCING ACRYLONITRILE COPOLYMERS
Hajime Miyama, Fujisawa, Noriho Harumiya, Kamakura, Mituru Nakao and Mutsumi Kimura, Otsu, Isao Ito, Matsuyama, and Katunori Ohgushi, Iyo-gun, Japan, assignors to Toray Industries, Inc., Tokyo, Japan
No Drawing. Filed July 9, 1970, Ser. No. 53,670
Claims priority, application Japan, July 25, 1969, 44/58,376
Int. Cl. C08f 1/20
U.S. Cl. 204—159.23 **2 Claims**

Photocopolymerization of acrylonitrile and vinylidene chloride, comprising projecting light onto these reactants in an organic solvent in the presence of hydrogen peroxide.

3,682,801
Patent Not Issued For This Number

3,682,802

METHOD FOR GRAFTING ON POLYESTER FIBERS WITH RADIATION

Ichiro Sakurada, Sakyo-ku, Kyoto-shi, and Toshio Okada, Moriguchi-shi, Osaka-fu, Japan, assignors to Japan Atomic Energy Research Institute, Tokyo, Japan

No Drawing. Filed Sept. 4, 1968, Ser. No. 757,475
Claims priority, application Japan, Sept. 6, 1967, 42/57,160; Dec. 2, 1967, 42/77,316
The portion of the term of the patent subsequent to Mar. 14, 1989, has been disclaimed
Int. Cl. B01j *1/00;* C08d *9/10;* C08g *39/10*
U.S. Cl. 204—159.15 9 Claims

A method of graft copolymerizing acrylic acid or methacrylic acid onto polyester fiber by irradiation with ionizing radiation, comprising the addition of pyridine, 2-vinylpyridine, or 4-vinylpyridine to the reaction system to increase the rate and the effectiveness of the graft copolymerization.

3,682,803

PROCESS FOR THE PHOTOCHEMICAL SULFOXIDATION OF n-PARAFFIN

Yuzuru Ogata, Sumio Arai, and Ichiro Iwasa, Wakayama, Japan, assignors to Kao Soap Co., Ltd., Tokyo, Japan

No Drawing. Filed Apr. 20, 1970, Ser. No. 30,209
Claims priority, application Japan, Apr. 23, 1969, 44/31,666
Int. Cl. B01j *1/10*
U.S. Cl. 204—162 R 4 Claims

A process for the photochemical sulfoxidation of n-paraffin comprises irradiating n-paraffin having 10–20 carbon atoms exclusively with radiations within a limited wave length range, from which the rays of wave lengths shorter than 300 mμ were cut off in the presence of sulfur dioxide and oxygen whereby the formation of undesirable brownish resinous matter is prevented.

3,682,804

METHOD OF PREPARING MERCAPTANS USING HIGH ENERGY RADIATION

Gerald L. Kochanny, Jr., Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Nov. 13, 1969, Ser. No. 876,614
Int. Cl. B01j *1/10*
U.S. Cl. 204—162 HE 8 Claims

Mercaptans are prepared by reaction olefins and H_2S in the presence of liquid saturated aliphatic ketones. Side reactions resulting in by-product formation are greatly reduced. The mercaptans can be converted to alkyl sulfates by oxidation.

This invention relates to a method of preparing mercaptans by commingling olefins and H_2S with small amounts of a liquid ketone and subjecting the mixture to high-energy radiation, such as gamma rays.

3,682,805

PROCESS FOR THE PREPARATION OF METHYL BROMIDE USING RADIATION

Arthur A. Asadorian, Midland, and Max R. Broadworth, Bay City, Mich., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Sept. 4, 1969, Ser. No. 855,368
Int. Cl. B01j *1/10;* C07c *17/00*
U.S. Cl. 204—163 R 9 Claims

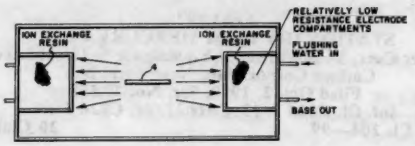
The present invention is a process for the preparation of methyl bromide which comprises refluxing methanol and bromine with exposure of the vapors to radiation of sufficient energy to activate the bromine. The process results in greater than 90% of the bromine employed being converted to methyl bromide.

3,682,806

CATHODIC TREATMENT OF AN ELECTRO-COATING BATH

Thomas P. Kinsella, South Holland, and Joseph M. De Vittorio, Homewood, Ill., assignors to The Sherwin-Williams Company, Cleveland, Ohio

Filed July 15, 1970, Ser. No. 55,139
Int. Cl. B01k *5/02;* B01d *13/02*
U.S. Cl. 204—181 13 Claims



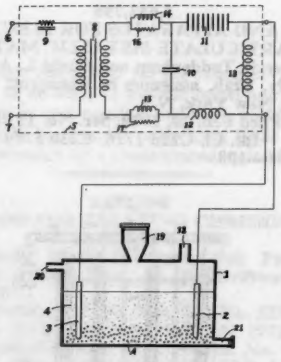
An ion exchange resin is captively held in fluid contact with a cathode and a permselective ion exchange membrane; the membrane divides a paint electrocoating bath into two main compartments, the anode compartment containing the paint composition to be coated onto an anode which is submerged in the paint bath, and a cathode compartment containing said resin. The instant process provides for removal of solubilizer ions in such a manner as to permit reconstitution of the main paint bath with from 90 to about 100% solubilized material. In one case, a strong-acid type ion exchange resin in the acid form is used, in the other, a fully neutralized or "loaded" ion exchange resin is used.

3,682,807

METHOD OF REFINING WASTE OILS

Wataru Ishibashi, 1563 Ichimiyake Yasucho, Yasugun, Shigaken, Japan

Filed Mar. 3, 1970, Ser. No. 16,071
Int. Cl. B03c *5/00;* B01k *1/00;* C22d *7/08*
U.S. Cl. 204—188 5 Claims



The removal of solid particle impurities from waste oils is performed by conventional means after the impurities have been brought together into a mass to such an extent

as to be capable of filtering, the aggregation being effected by an electric spark taking place in the waste oil having a dielectric medium therein.

3,682,808

PHOTOPOLYMERIZABLE COMPOSITIONS CONTAINING OXYPHOSPHORANES

Carl Heinrich Krauch, Heidelberg, and Horst Hoffmann, Ludwigshafen, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed Mar. 10, 1971, Ser. No. 122,996
Claims priority, application Germany, Mar. 14, 1970, P 20 12 221.8
Int. Cl. C08f
U.S. Cl. 204—159.15 5 Claims

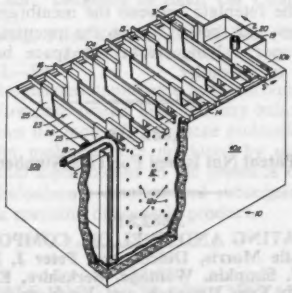
Photopolymerizable compositions containing photopolymerizable ethylenically unsaturated monomeric compounds, a polymer as binder and also oxyphosphoranes. The addition of oxyphosphoranes considerably improves the photosensitivity of the photopolymerizable compositions and the constancy of said sensitivity even when they are stored for prolonged periods.

3,682,809

ELECTROLYTIC CELL CONSTRUCTED FOR HIGH CIRCULATION AND UNIFORM FLOW OF ELECTROLYTE

Kent F. Marquardson, Salt Lake City, and Daniel M. Lewis, Magna, Utah, assignors to Kennecott Copper Corporation, New York, N.Y.

Filed Feb. 24, 1970, Ser. No. 13,690
Int. Cl. C23b *5/70*
U.S. Cl. 204—275 6 Claims



Rapid circulation and uniform flow of electrolyte between flat plate electrodes arranged transversely of an electrolytic cell for electrorefining or electrowinning purposes are obtained by constructing the cell with a perforated baffle dividing an elongate and narrow electrolyte feed chamber along one side of the cell from the cell proper and with at least one vertical input pipe, having inflow orifices at intervals along its height and directed lengthwise of the feed chamber, for distributed input of electrolyte to such feed chamber. The electrodes are preferably deeply recessed intermediate their upper margins to provide an uninterrupted flow channel in the upper part of the cell and from end to end thereof.

3,682,810

Patent Not Issued For This Number

3,682,811

HYDROCONVERSION PROCESS

Bernard F. Mulaskey, Fairfax, Calif., assignor to Chevron Research Company, San Francisco, Calif.

No Drawing. Continuation-in-part of application Ser. No. 858,128, Sept. 15, 1969, now Patent No. 3,598,724, which is a continuation-in-part of application Ser. No. 742,321, July 3, 1968, now Patent No. 3,487,007, which is a continuation-in-part of application Ser. No. 645,855, June 8, 1967, now Patent No. 3,399,132, which in turn is a continuation-in-part of application Ser. No. 568,536, July 28, 1966. This application Apr. 29, 1970, Ser. No. 33,087
Int. Cl. C10g *13/02, 13/04*
U.S. Cl. 208—111 7 Claims

A hydroconversion process which comprises contacting a hydrocarbon feed in the presence of hydrogen with a catalyst comprising a mixture of (1) a layered crystalline clay-type aluminosilicate and (2) an amorphous porous inorganic oxide in association with nickel and tin in an amount of from 2 to 50 combined weight percent metals with a nickel to tin weight ratio of from 0.25 to 20.

3,682,812

DEWAXING OF WAXY PETROLEUM DISTILLATES

William L. Streets and Charles O. Glenn, Bartlesville, Okla., assignors to Phillips Petroleum Company

No Drawing. Filed May 25, 1970, Ser. No. 40,353
Int. Cl. C10g *43/06*
U.S. Cl. 208—38 5 Claims

A small effective amount of a hydrogenated butadiene-styrene random or block copolymer is added to a waxy petroleum distillate such as a diesel fuel and the treated fuel is cooled and filtered, yielding a relatively oil-free wax at a high filtration rate.

3,682,813

MULTIZONE HYDROCRACKING PROCESS FOR HVI LUBRICATING OILS

Peter W. Dun and Pieter A. van Weeren, Amsterdam, Netherlands, assignors to Shell Oil Company, New York, N.Y.

No Drawing. Filed May 20, 1970, Ser. No. 39,871
Claims priority, application Netherlands, June 4, 1969, 6908525
Int. Cl. C10g *13/04, 31/14;* C10m *1/07*
U.S. Cl. 208—59 8 Claims

High viscosity index lubricating base oils are produced from a deasphalted oil in a multizone hydrocracking process in which a sulfided nonacidic catalyst comprising one or more metals of the Group VI–B, VII–B or VIII metals is used in each reaction zone. Preferably, hydrogen sulfide and/or ammonia are removed from the first-zone effluent before introducing it into the second zone. The first reaction zone temperature is at least 750° F. while the second reaction zone temperature is at least 700° F.

3,682,814

CATHODIC ELECTROCOATING PROCESS

Allan E. Gilchrist, Westlake, Ohio, assignor to SCM Corporation, Cleveland, Ohio

No Drawing. Filed Sept. 25, 1970, Ser. No. 75,697
Int. Cl. B01k *5/02, 13/00*
U.S. Cl. 204—181 9 Claims

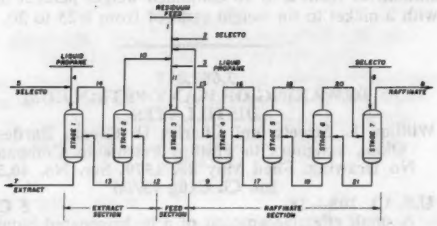
An improvement in process is shown for electrocoating cathodic substrates with paint from an aqueous bath replenished periodically or continuously with cationic resinous paint binder, said binder being dispersed in the bath with ionizing acid. The acid used is one readily decomposable during the operation, e.g., formic or citric; the anode zone conditions are established and maintained for decomposition of at least about a quarter of such acid substantially as fast as it is deionized at the anode; a decomposition residue is separated from the bath; and

additional such acid is added to the bath at the rate the acid is being decomposed. Advantageously for such decomposition the anode zone contains an oxidation promoter, is at higher temperature than the cathode zone, and there is higher anode than cathode electric current density.

3,682,815
DUO-SOL PROCESS WITH SPLIT FEED OF POLAR SOLVENT

Raymond N. Fleck, West Covina, Louis M. Dvoracek, Brea, and Paul F. Lueth, Fullerton, Calif., assignors to Union Oil Company of California, Los Angeles, Calif.

Filed July 27, 1970, Ser. No. 58,365
Int. Cl. C10g *21/04*
U.S. Cl. 208—314 **9 Claims**

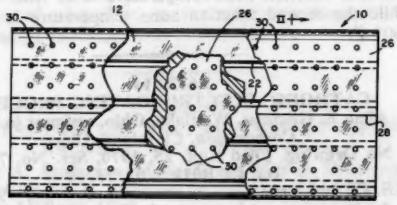


A Duo-Sol process wherein a residuum is subjected to a countercurrent liquid-liquid extraction process utilizing a paraffinic solvent to extract paraffins and a polar solvent to extract aromatics, naphthenes and asphaltenes is improved by introducing 5–50 percent of the polar solvent into the residuum feed stage. In another emobdiment, 1–5 percent of the polar solvent is introduced into the paraffinic solvent feed stage. The invention is particularly useful wherein the residuum contains a relatively high amount of asphaltenes.

3,682,816
CLOTH-BOARD REEL

Joseph T. Yovanovich, Rosemont, Pa., assignor of a fractional part interest to Milton Berger, Philadelphia, Pa.

Filed Feb. 19, 1971, Ser. No. 116,869
Int. Cl. B65h *75/06*
U.S. Cl. 206—50 **7 Claims**

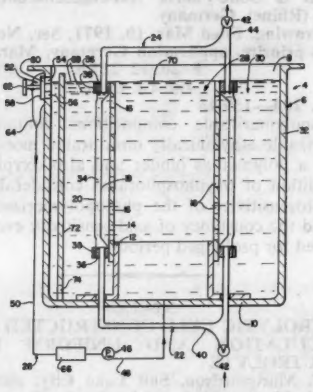


A cloth-board reel is provided with a core made of plastic material. The core is provided with flat, substantially wide oppositely facing fluted sides and rounded narrow longitudinally extending edges. Tightly wrapped about the core is a sheet of rather heavy paper stock which covers both sides and both rounded edges of the core, having the two ends of the core uncovered.

3,682,817
DIALYZER

Günter H. Marx, Munich, Germany, assignor to Bio-Cal Instrument Company, Richmond, Calif.

Filed Aug. 7, 1970, Ser. No. 61,961
Int. Cl. B01d *31/00, 13/00*
U.S. Cl. 210—22 **20 Claims**



A dialyzer in which a pair of spaced apart, upright, opposing semipermeable membranes separate independent bodies of a dialysate. Retentate is flowed through the space between the membranes to effect an ion exchange between the retentate and the dialysate. The fluid level of one of the dialysate bodies is intermittently raised and lowered to subject the retentate between the membranes to varying pressures and thereby pump the retentate, with the help of proper valving, from the space between the membranes to an outlet.

3,682,818

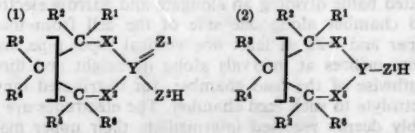
Patent Not Issued For This Number

3,682,819
LUBRICATING AND FUEL OIL COMPOSITIONS

Arthur Leslie Morris, Didcot, and Peter J. Morris and Dennis J. Simpkin, Wantage, Berkshire, England, assignors to Esso Research and Engineering Company

No Drawing. Filed Jan. 30, 1970, Ser. No. 7,248
Claims priority, application Great Britain, Feb. 6, 1969, 6,437/69
Int. Cl. C10m *1/48, 1/54*
U.S. Cl. 252—32.7 E **2 Claims**

Lubricating oil or fuel oil compositions containing as antiwear additives an amine salt of a compound of one of the following formulae:



where X^1 and X^2 similar or dissimilar are oxygen or sulphur; Y is phosphorus or arsenic; Z^1 and Z^2 similar or dissimilar are oxygen or sulphur; R^1, R^2, R^3, R^4, R^5 and R^6 are hydrogen or hydrogen- and carbon-containing groups; provided at least one of R^1, R^2, R^5 and R^6 is a hydrogen- and carbon-containing group; and n is zero or an integer from one to six inclusive.

3,682,820
DRILLING FLUID
Jack H. Kolaian, Wappingers Falls, N.Y., assignor to Texaco Inc., New York, N.Y.
No Drawing. Continuation-in-part of application Ser. No. 633,417, Apr. 25, 1967. This application May 1, 1970, Ser. No. 33,979
Int. Cl. C10m *3/28, 3/34*
U.S. Cl. 252—8.5 C 10 Claims

An aqueous drilling fluid dispersant and a method of drilling wells using said drilling fluid which contains a substituted benzene dispersant, namely, 1-amino-2-hydroxy-5-methylbenzene, 1-amino-2-hydroxy-4-sulfobenzene, 2,5-dihydroxy-1,4-disulfobenzene and 1-amino-2-hydroxy-4-sulfonaphthalene.

3,682,821
DRILLING FLUID
Jack H. Kolaian, Wappingers Falls, N.Y., assignor to Texaco Inc., New York, N.Y.
No Drawing. Filed Dec. 24, 1969, Ser. No. 888,052
The portion of the term of the patent subsequent to Feb. 8, 1989, has been disclaimed
Int. Cl. C10m *3/20, 3/14*
U.S. Cl. 252—8.5 C 16 Claims

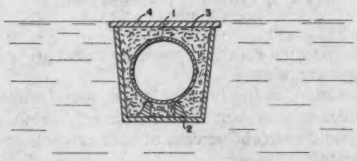
An aqueous drilling fluid dispersant and a method of drilling wells using said drilling fluid dispersant which contains an aryl substituted aliphatic acid compound as the dispersant, namely a β-3,4-dihydroxyphenyl propionic acid alkali metal salt thereof or mixtures thereof.

3,682,822
Patent Not Issued For This Number

3,682,823
SYNTHETIC OILS FROM ALPHA-OLEFINS
George Smith, Pinole, and Johannes M. Wortel, Walnut Creek, Calif., assignors to Shell Oil Company, New York, N.Y.
No Drawing. Filed June 17, 1970, Ser. No. 47,133
Int. Cl. C10m *3/12*
U.S. Cl. 252—59 12 Claims

Fully hydrogenated naphthenic hydrocarbon lubricating oils having low pour points, high viscosity indices and containing at least 0.7 mole of naphthene molecules per mole of isoparaffin molecules are produced by oligomerizing C_6–C_{12} normal alpha-olefins in the presence of an alkali metal tetrahaloalanate catalyst and subsequently hydrogenating the resulting oligomeric product.

3,682,824
FLEXIBLE INSULANTS FOR CONTAINERS AND CONDUITS
Leonard F. Creaser, Wirral, England, assignor to Shell Oil Company, New York, N.Y.
Filed May 13, 1970, Ser. No. 36,828
Claims priority, application Great Britain, Nov. 11, 1969, 55,096/69
Int. Cl. C04b *43/00;* E16l *59/14;* B65d *81/38*
U.S. Cl. 252—62 5 Claims



An improved thermal insulating material for systems containing liquefied gases at low temperatures, said insulant being a hydrocarbon-based foam having a freezing temperature lower or slightly higher than the liquefied gases.

3,682,825
PROCESS FOR THE PRODUCTION OF ELECTROPHOTOGRAPHIC LIQUID DEVELOPER CONTAINING GELATIN
Yasuo Tamai and Satoru Honjo, Asaka-shi, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan
No Drawing. Filed Feb. 3, 1970, Ser. No. 8,432
Claims priority, application Japan, Feb. 3, 1969, 44/7,944
Int. Cl. G03g *9/04*
U.S. Cl. 252—62.1 9 Claims

A process for the production of a liquid developer for developing an electrostatic latent image which comprises the steps of (1) dispersing in an organic solvent which is miscible with water but is a non-solvent for gelatin, an aqueous solution of gelatin, the concentration of the gelatin being in the range of approximately 1 to 20% by weight, or a solution of gelatin in a mixed solvent of water and an alcohol prepared by incorporating in the aqueous solution of gelatin an alcohol in an amount causing no precipitation of the gelatin to provide a dispersion of gelatin grains where the amount of the organic solvent is at least ten times the amount of the aqueous solution of gelatin or the solution of gelatin in the mixed solvent of water and alcohol to be added thereto, (2) adding to the resultant dispersion of gelatin a solution of a resin which is insoluble in the organic solvent for said gelatin dispersion but soluble in a carrier liquid having an electric resistance of higher than 10^{10} cm. to coprecipitate the gelatin grains and the resin, and (3) adding the precipitates of the gelatin grains and the resin to the carrier liquid mentioned above.

3,682,826
OXIDE PIEZOELECTRIC MATERIALS
Noboru Ichinose, Harutoshi Egami, Katsunori Yokoyama, and Yohachi Yamashita, Yokohama, Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan
Filed Mar. 29, 1971, Ser. No. 129,105
Claims priority, application Japan, Apr. 1, 1970, 45/26,966
Int. Cl. C04b *46/48*
U.S. Cl. 252—62.9 1 Claim

Ternary oxide piezoelectric materials consisting of 0.5 to 50.0 mol percent of $Pb(Me_{1/2}Te_{1/2})O_3$, 35.0 to 57.0 mol percent $PbTiO_3$ and 15.0 to 55.0 mol percent of $PbZrO_3$ (where Me denotes at least one metal of the group of magnesium and zinc).

3,682,827
PIEZOELECTRIC OXIDE MATERIAL
Noboru Ichinose, Harutoshi Egami, Katsunori Yokoyama, and Yohachi Yamashita, Yokohama, Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan
Filed June 16, 1971, Ser. No. 153,734
Claims priority, application Japan, June 18, 1970, 45/52,383
Int. Cl. C04b *35/46, 35/48, 35/50*
U.S. Cl. 252—62.9 1 Claim

A piezoelectric oxide material having a composition of 0.3 to 3.0 mol percent of $(Me_{1/2}La_{1/2})(Na_{1/2}Te_{1/2})O_3$ (where Me represents at least one metal selected from the group consisting of Ba, Sr, Ca, Pb; hereinafter referred to as "Me:Ba, Sr, Ca, Pb"), 60.0 to 30.0 mol percent of $PbTiO_3$ and 55.0 to 25.0 mol percent of $PbZrO_3$.

3,682,828

SILICA GEL-CONTAINING MAGNESIA INSULATING COMPOSITION

Heinrich Keddeinis, Ranzel, Arnold Lenz, Cologne-Stammhein, Otto Bleh, Bergheim, Sieg, and Erich Termin, Niederkassel, Germany, assignors to Dynamit Nobel Aktiengesellschaft, Troisdorf, Germany

No Drawing. Filed June 22, 1970, Ser. No. 48,554
Int. Cl. H01b *3/10, 7/00;* H05b *3/60*
U.S. Cl. 252—63.2 3 Claims

An electrical insulating material consists essentially of:

(1) a sintered magnesia of at least 94 weight percent purity, and

(2) 0.1 to 7 weight percent of a silica gel having a specific surface area in the range of 50 to 1100 $m.^2/g.$, and a size less than 370μ, preferably less than 70μ.

This insulating material is particularly useful in the manufacture of tubular heating coils and insulators.

3,682,829

PRODUCTION OF LOW SILICA CONTENT DRY, GRANULAR AUTOMATIC DISH WASHING DETERGENT

Robert S. Cooper, Arlington Heights, and Donald C. Wood, Des Plaines, Ill., assignors to De Soto, Inc., Des Plaines, Ill.

No Drawing. Filed Sept. 10, 1970, Ser. No. 71,222
Int. Cl. C11d *7/56*
U.S. Cl. 252—99 8 Claims

Dry, granular automatic dish washing detergent is provided by slowly spraying aqueous alkali metal silicate solution of relatively high silica content onto agitated particles of anhydrous granular alkali metal tripolyphosphate to directly provide a dry powder having a silica content in the range of 8.5 to 10% by weight, based on the weight of the silicated tripolyphosphate. The granular particles in the dry powder have a core of alkali metal tripolyphosphate with the silicate being superimopsed about the polyphosphate core. From about 0.5 to about 3% of a chlorinated isocyanurate is added to provide active chlorine in a stable composition.

3,682,830

STABILIZATION OF CHLORINATED HYDROCARBONS

Norman L. Beckers, Chardon, Ohio, assignor to Diamond Shamrock Corporation, Cleveland, Ohio

No Drawing. Continuation-in-part of application Ser. No. 794,410, Jan. 27, 1969. This application July 13, 1970, Ser. No. 54,567
Int. Cl. C23g *5/02*
U.S. Cl. 252—171 7 Claims

A class of hydrazones, alkoxyaldehyde hydrazones, particularly useful as stabilizers for chlorinated hydrocarbons, are disclosed.

3,682,831

METHOD OF AND COMPOSITION FOR THE PREVENTION OF SCALE

Jack F. Tate, Houston, Tex., assignor to Texaco Inc., New York, N.Y.

No Drawing. Filed Dec. 16, 1969, Ser. No. 885,644
Int. Cl. C23f *14/02*
U.S. Cl. 252—180 8 Claims

Method of and composition for the prevention of scale, particularly calcium sulfate scale, using a water soluble glycol-silicone copolymer of a prescribed formula having a molecular weight in the range of from about 458 to about 1148.

3,682,832

Patent Not Issued For This Number

3,682,833

THERMOLUMINESCENT MATERIALS

Teiichi Hitomi, Noboru Kotera, and Hitoshi Sakamoto, Kamakura-shi, Japan, assignors to Dai Nippon Toryo Kabushiki Kaisha, Osaka-shi, Japan

Filed Aug. 20, 1969, Ser. No. 851,580
Claims priority, application Japan, Aug. 23, 1968, 43/59,823
Int. Cl. C09k *1/04*
U.S. Cl. 252—301 R 14 Claims

A material prepared by adding a very small amount of terbium oxide as an activator to a complex oxide consisting of yttrium oxide and one member of the group consisting of sodium oxide, potassium oxide, magnesium oxide, boron oxide and aluminum oxide exhibits strong thermoluminescence at elevated temperatures after excitation with electron beams or ionizing radiations, and shows a high sensitivity in detection and measurement of the exposure dose of ionizing radiation.

3,682,834

REDUCING THE RESIDUE CAUSED BY THE VAPORIZATION OF CHLORINATED SOLVENT TO DRYNESS

Thomas A. Vivian, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Oct. 23, 1970, Ser. No. 83,654
Int. Cl. B01f *1/00*
U.S. Cl. 252—364 3 Claims

By addition of a small but effective amount of dimethoxymethane to a chlorinated solvent containing by volume a major portion of methylene chloride, a minor proportion of perchloroethylene, trichloroethylene or mixture thereof and a minor proportion of other organic solvents, the residue left upon the vaporization of the solvent to dryness is reduced.

3,682,835

LIQUID BLOOD SERUM CONTROL STANDARD

Allan L. Louderback, Temple City, Calif., assignor to Baxter Laboratories, Inc., Morton Grove, Ill.

No Drawing. Filed Nov. 24, 1970, Ser. No. 92,533
Int. Cl. C09k *3/00*
U.S. Cl. 252—408 5 Claims

A liquid control standard for use in the analysis of blood serum, which standard is prepared from anticoagulant-stored blood plasma by treating the defibrinated plasma with ion exchange resin to reduce the alkali and alkaline-earth metal cation level followed by drying, removing the lipoprotein component by extraction with a fat solvent and then reconstituting the product with water.

3,682,836

METAL PHOSPHATE-CONTAINING CATALYSTS AND PREPARATION

Joseph Jaffe, Berkeley, Calif., assignor to Chevron Research Company, San Francisco, Calif.

No Drawing. Continuation-in-part of application Ser. No. 843,207, July 18, 1969, which is a continuation-in-part of application Ser. No. 671,994, Oct. 2, 1967. This application Feb. 26, 1970, Ser. No. 14,687
The portion of the term of the patent subsequent to Feb. 3, 1987, has been disclaimed
Int. Cl. B01j *11/82*
U.S. Cl. 252—437 9 Claims

A hydrotreating catalyst consisting essentially of a porous xerogel containing

(a) tungsten, in the form of metal, metal oxide, metal sulfide, or any combination thereof, in an amount of 5 to 25 weight percent of said xerogel, calculated as metal;

(b) discrete substantially insoluble metal phosphate particles

(1) being dispersed in said xerogel,

(2) consisting of at least one metal phosphate selected from phosphates of titanium, zirconium, thorium, tin, hafnium and cerium, and

(3) containing phosphorus, or a compound thereof, in an amount of 1.3 to 6.6 weight percent of said xerogel calculated as phosphorus;

(c) silica, in an amount of 0.5 to 10 weight percent of said xerogel; and

(d) alumina, in an amount of at least 30 weight percent of said xerogel.

3,682,837

Patent Not Issued For This Number

3,682,838

MULTICOMPONENT DEHYDROGENATION CATALYST

Herman S. Bloch, Skokie, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.

No Drawing. Filed June 26, 1970, Ser. No. 50,333
Int. Cl. B01j *11/06, 11/08, 11/32*
U.S. Cl. 252—464 **21 Claims**

A catalytic composite, comprising a combination of catalytically effective amounts of a platinum group component, a Group IV–A metallic component, a Group V–A metallic component and an alkali or alkaline earth component with an alumina carrier material, is disclosed. A specific example of the disclosed composite is a combination of catalytically effective amounts of a platinum component, a germanium component, an arsenic component and an alkali or alkaline earth component with an alumina carrier material. Principal uses of this composite is in a method for the dehydrogenation of a dehydrogenatable hydrocarbon and particularly for the dehydrogenation of long chain normal paraffins to produce normal mono-olefins of the same carbon number.

3,682,839

ELECTRICAL RESISTANCE ELEMENTS

Robert L. Galloway, Durham, England, assignor to Morganite Resistors Limited, Jarrow, Durham County, England

No Drawing. Filed Nov. 26, 1969, Ser. No. 880,352
Int. Cl. H01b *1/06;* **C04b** *35/52;* **F24b** *1/10*
U.S. Cl. 252—508 **9 Claims**

An electrical resistance element consists of a refractory conglomerate of particles of a material, e.g. carbon, of low electrical resistivity and a material, e.g. calcined clay or alumina, of high electrical resistivity and a basic binder, e.g. ball clay or bentonite, processed to form an open cellular structure so that the element is permeable by a fluid, the structure having either or both of the following characteristics:

(a) the apparent porosity of the element is not less than 25%;

(b) between two surfaces the permeability of the element is such as to give a flow rate of not less than 0.1 ml. (millilitre) of water per second through a 1 cm. cube of the element material, under a pressure of 50 mm. mercury at a temperature of 20° C.

3,682,840

ELECTRICAL RESISTOR CONTAINING LEAD RUTHENATE

Paul R. Van Loan, Grand Island, N.Y., assignor to Air Reduction Company, Incorporated, New York, N.Y.

No Drawing. Filed Oct. 19, 1970, Ser. No. 82,161
Int. Cl. H01b *1/06;* **C03c** *3/04*
U.S. Cl. 252—518 **11 Claims**

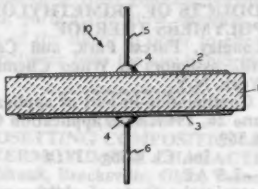
Electrically resistive compositions and resistive elements are disclosed comprising lead ruthenate and mixtures thereof with ruthenium dioxide dispersed in electrically insulating inert matrices.

3,682,841

VOLTAGE DEPENDENT RESISTORS IN A BULK TYPE

Michio Matsuoka, Takeshi Masuyama, and Yoshio Iida, Osaka-fu, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Dec. 1, 1970, Ser. No. 93,971
Claims priority, application Japan, Dec. 12, 1969, 44/100,447; Dec. 16, 1969, 44/102,203, 44/102,204, 44/102,205, 44/102,206; Dec. 23, 1969, 44/569; Apr. 6, 1970, 45/29,908
Int. Cl. H01b *1/06*
U.S. Cl. 252—518 **5 Claims**



A voltage dependent resistor of the bulk type. The resistor has a sintered body consisting essentially of, as a major part, zinc oxide (ZnO) and, as an additive, 0.05 to 10.0 mole percent of beryllium oxide (BeO) and 0.05 to 10.0 mole percent, in total, of at least one member selected from the group consisting of bismuth oxide (Bi_2O_3), cobalt oxide (CoO) manganese oxide (MnO), barium oxide (BaO), strontium oxide (SrO) and lead oxide (PbO). Electrodes are provided which are in contact with said body.

3,682,842

STABILIZED ENZYMIC COMPOSITIONS CONTAINING PROTEASE AND ALPHA AMYLASE OF BACTERIAL ORIGIN AND METHOD OF STABILIZING SUCH COMPOSITIONS

Irving Innerfield, 20 Knickerbocker Road, Tenafly, N.J.

No Drawing. Filed May 4, 1970, Ser. No. 34,600
The portion of the term of the patent subsequent to Apr. 20, 1988, has been disclaimed
Int. Cl. C11d *1/12*
U.S. Cl. 252—539 **9 Claims**

An enzymic composition of protease and alpha amylase of bacterial origin is stabilized against the loss of activity in the presence of water by combining the enzymes with a less than stoichiometric quantity of an enzyme-ion binding agent; and the shelf life of the stabilized enzymic composition is prolonged by adding thereto, in non-precipitating quantities, salt and at least one member of the group consisting of organic solvent and anionic detergent.

3,682,843

Patent Not Issued For This Number

3,682,844

EXPANDABLE POLYSTYRENE AND METHOD FOR PRODUCING SAME

Edward J. Schwoegler, Munster, Ind., and Clifford P. Ronden, Edmonton, Alberta, Canada, assignors to Cupples Container Co., Austin, Tex.

No Drawing. Filed Sept. 29, 1970, Ser. No. 76,617
Int. Cl. C08j *1/26*
U.S. Cl. 260—2.5 B **6 Claims**

Expandable polystyrene particles having 0.5–6% by weight ethylene-vinyl acetate copolymer distributed through each bead are prepared by dispersing the copolymer in finely divided form through liquid styrene

monomer and heating with agitation at at least 60° C., dispersing the resulting dispersion in an aqueous suspension medium, and forming the particles by suspension polymerization. The particles have improved fusion characteristics making it possible to produce molded, foamed articles therefrom in a shorter molding time. The molded articles have an improved and distinctive surface appearance as compared with articles molded from unmodified polystyrene particles.

3,682,845

POLYURETHANES DERIVED FROM ALKYLENE OXIDE ADDUCTS OF TRIMETHYLOL PHENOLS AND OF POLYMERS THEREOF

Kermit D. Longley, Forest Park, and Carl Bernstein, Deerfield, Ill., assignors to Witco Chemical Corporation, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 648,941, June 26, 1967. This application Oct. 16, 1970, Ser. No. 81,569

Int. Cl. C08g *22/14*

U.S. Cl. 260—2.5 AP **8 Claims**

Polyurethanes in the form of elastomers, or flexible, semi-rigid and rigid foams, resulting from the interaction of polyisocyanates and alkylene oxide adducts of trimethylol phenol compounds or of dimers, trimers or tetramers of said trimethylol phenol compounds.

3,682,846

POLYESTER FILAMENTS HAVING AN IMPROVED WATER-ABSORBING PROPERTY

Keizo Sano, Nagaizumi-machi, Taigi Watanabe, Mishima-shi, Michihiko Tanaka, Nagaizumi-machi, Yoshimitsu Ichikawa, Mishima-shi, Koichi Kato, Otsu-shi, and Hirokichi Matsuura, Mishima-shi, Japan, assignors to Toray Industries, Inc., Tokyo, Japan

Filed Oct. 27, 1969, Ser. No. 869,731

Int. Cl. C08j *1/14, 1/28*

U.S. Cl. 260—2.5 N **9 Claims**

Polyester filaments containing therein 0.4–5% by weight of a polyalkylene ether and 0.3–3% by weight of a metal salt derivative, and having fine pores aligned in the direction of the filament axis.

3,682,847

PROCESS FOR THE PRODUCTION OF POLYAMIDE FOAM

Heinrich Gilch, Bonn-Ippendorf, Walter Damsky, Krefeld-Bockum, and Klaus Reinking, Krefeld, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Dec. 17, 1969, Ser. No. 885,951

Claims priority, application Germany, Jan. 10, 1969, P 19 01 031.2

Int. Cl. C08j *1/16*

U.S. Cl. 260—2.5 N **11 Claims**

Process for the production of polyamide foam by dissolving under pressure a gas in a polymerisable mixture of a lactam, a basic catalyst and an activator, heating this reaction mass to polymerisation temperature, releasing the pressure of the reaction mass, and thereafter finally polymerising the reaction mass in a mould.

3,682,848

RESINOUS MICROPOROUS TRANSFER STRUCTURE

Robert Craig Virnelson, South Euclid, Ohio, assignor to Buckeye Ribbon & Carbon Company, Cleveland, Ohio

No Drawing. Filed Apr. 20, 1970, Ser. No. 30,234

Int. Cl. C08f *47/08*

U.S. Cl. 260—2.5 M **13 Claims**

A resinous, microporous, reticulated transfer structure for absorbing and subsequently expressing a predetermined material, such as ink, characterized by having a pore size sufficiently large to enable the structure to be repeatedly reloaded with the material and yet sufficiently small to avoid objectional leaking and exudation of the material.

3,682,849

ALCOHOL ETHOXYLATES

George Smith, Oakland, Calif., Webster M. Sawyer, Jr., Houston, Tex., and Rupert C. Morris, Berkeley, Calif., assignors to Shell Oil Company, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 714,434, Mar. 20, 1968. This application Oct. 8, 1970, Ser. No. 79,270

Int. Cl. C07c *43/04, 41/02*

U.S. Cl. 260—615 B **6 Claims**

Certain mixtures of ethylene oxide derivatives of primary alcohols of 11 to 15 carbon atoms, substantially free from alcohol and lower ethoxylates, are surfactants exhibiting superior physical properties.

3,682,850

CELLULOSIC ESTERS OF TWO ORGANIC ACIDS BLENDED WITH A COPOLYMER OF ETHYLENE AND AT LEAST ONE ETHYLENICALLY UNSATURATED ESTER OF A SATURATED FATTY ACID

John Stuart Coates, Houston, Tex., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed July 30, 1970, Ser. No. 59,677

Int. Cl. C09d *3/76*

U.S. Cl. 260—17 R **17 Claims**

A thermoplastic composition capable of forming compatible films comprising a blend of a cellulosic ester of two organic acids with a copolymer of ethylene and at least one ethylenically unsaturated ester of a fatty acid, a lacquer comprising an organic solvent solution of the composition, and a material having the composition coated thereon are provided.

3,682,851

Patent Not Issued For This Number

3,682,852

Patent Not Issued For This Number

3,682,853

LIQUID STABILIZERS FOR VINYL CHLORIDE RESINS

Walter P. Barie, Jr., Shaler Township, Norman W. Franke, Penn Hills Township, and Gary M. Singerman, Borough of Monroeville, Allegheny County, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.

No Drawing. Filed Oct. 1, 1970, Ser. No. 77,363

Int. Cl. C08f *29/18, 45/62*

U.S. Cl. 260—23 XA **7 Claims**

The stabilization of polyvinyl chloride resins and polyvinyl chloride resin compositions with novel storage-

stable liquid compositions comprising metal salts of linear aliphatic monocarboxylic acids, a triorganophosphite, a carboxylic acid anhydride, a carboxylic acid and a hydrocarbon solvent.

3,682,854

SYNTHESIS AND DISPERSION OF RESIN PARTICLES IN A CONTINUOUS PHASE LOW MOLECULAR WEIGHT OXIDIZED POLYETHYLENE BINDER

Daniel Bennahmias, Oakland, Harry P. Locklin, Lafayette, and Paul Gordon Locklin, Walnut Creek, Calif., assignors to Hercules Incorporated, Wilmington, Del.

No Drawing. Continuation-in-part of application Ser. No. 744,673, July 15, 1968. This application Sept. 28, 1970, Ser. No. 76,241

Int. Cl. C08g *5/18, 17/14, 53/18*

U.S. Cl. 260—29.1 R **11 Claims**

Certain low molecular weight oxidized polyethylenes serve as the binder and preparative reaction medium for a resinous composition which is formed as a uniform particulate dispersion therein. Typical is the formation of particles of a co-condensate of melamine, formaldehyde, and toluene sulfonamide in combination with a dye to impart coloration to the particles. Colored particles may be formed so as to constitute 55% by weight and higher concentrations in the polyethylene. The colored concentrate is useful for incorporation into plastics for the coloration thereof.

3,682,855

Patent Not Issued For This Number

3,682,856

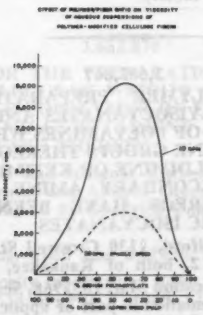
VISCOSITY INCREASING AGENT OF POLYMER-GRAFTED CELLULOSE FIBERS AND METHOD THEREFOR

James William Adams and August Henry Tilloson, Schofield, Wis., assignors to American Can Company, Greenwich, Conn.

Filed Jan. 29, 1971, Ser. No. 110,812

Int. Cl. C08f *29/50, 45/18*

U.S. Cl. 260—17.4 GC **12 Claims**



An agent for greatly increasing the viscosity of aqueous systems which comprises polymer-modified natural cellulose fibers which have been wet or dry milled to form fine fragments of the original fibrous structure. Small percentages of alkali polyacrylate-modified cellulose fibers milled, mechanically fragmented or crushed to a fine particle size have been found effective in thickening aqueous systems such as latex based paints, hand and body lotions, sizing solutions and the like.

3,682,857

COMPOSITIONS CONTAINING VINYL CHLORIDE POLYMERS

David Neil Harris, Geoffrey Markham Hood, and Alan Sheller, Welwyn Garden City, England, assignors to Imperial Chemical Industries Limited, London, England

No Drawing. Filed Apr. 10, 1969, Ser. No. 815,178

Claims priority, application Great Britain, Apr. 19, 1968, 18,672/68

Int. Cl. C08f *29/24*

U.S. Cl. 260—33.8 UA **17 Claims**

Blends of vinyl chloride polymers and other polymers are prepared by coagulating a latex of the other polymer in the presence of a vinyl chloride polymer slurry. An organic liquid, particularly vinyl chloride, is present before filtration of the slurry in order to effect adhesion of the modifier polymer onto the vinyl chloride polymer.

3,682,858

THERMOSETTING COMPOSITION HAVING THERMOPLASTIC CHARACTER

Raymond S. Shank, Brecksville, Ohio, Vernon H. Kallenborn, Winona, Minn., and Alice W. Kennedy, Northfield, Ohio, assignors to The Standard Oil Company, Cleveland, Ohio

No Drawing. Continuation-in-part of application Ser. No. 651,394, July 6, 1967. This application Mar. 18, 1970, Ser. No. 20,843

Int. Cl. C08k *1/02*

U.S. Cl. 260—40 R **9 Claims**

A thermosetting resin composition which is composed of an ethylenically unsaturated polymerizable polyester, diallyl phthalate, N-t-octyl acrylamide and optionally fillers, pigments and reinforcing agents is described.

3,682,859

FREE-FLOWING TETRAFLUOROETHYLENE POLYMER COMPOSITION AND PROCESS OF PRODUCING THE SAME

Ronald B. Taylor, Swarthmore, Pa., and Kerin G. Boardman, Palos Verdes, Calif., assignors to Liquid Nitrogen Processing Corporation, Malvern, Pa.

No Drawing. Continuation-in-part of application Ser. No. 787,218, Dec. 26, 1968. This application June 20, 1969, Ser. No. 835,263

Int. Cl. C08f *29/16, 47/02*

U.S. Cl. 260—41 AG **5 Claims**

A free-flowing tetrafluoroethylene polymer composition which comprises a uniform mixture of tetrafluoroethylene polymer particles having a maximum dimension of between 10 to 100 microns and between 0.01 to 10 weight percent of a fluorinated ethylene/propylene copolymer. The mixture may have fillers, e.g. about 5 to 40 weight percent of glass fibers. The process of producing the aforesaid free-flowing mixture includes the steps of tumbling the tetrafluoroethylene polymer and the copolymer in the presence of an organic liquid which wets the tetrafluoroethylene polymer and which has a surface tension of below 40.0 dynes per centimeter.

3,682,860

THERMALLY STABLE POLYMERS AND METHOD OF THEIR PRODUCTION

Naoya Yoda, Takashi Kubota, Masaru Kurihara, and Noriaki Dokoshi, Otsu, and Toshiya Yoshi-i, Kyoto, Japan, assignors to Toray Industries, Inc., Tokyo, Japan

No Drawing. Filed Feb. 26, 1970, Ser. No. 14,685

Claims priority, application Japan, Mar. 3, 1969, 44/15,391; Sept. 3, 1969, 44/69,363; Sept. 22, 1969, 44/74,605

Int. Cl. C08g *20/32*

U.S. Cl. 260—47 CB **7 Claims**

Heat resistant polyamideimides with an amide bond to imide bond ratio of 2:1.

3,682,861

POLYURETHANE ELASTOMERS AND A PROCESS FOR THE PRODUCTION THEREOF

Eduard Radlmann and Armin Kohler, Dormagen, Klaus Konig, Leverkusen, and Gunther Nischk, Dormagen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Jan. 16, 1970, Ser. No. 3,521
Claims priority, application Germany, Jan. 25, 1969, P 19 03 740.2; Sept. 16, 1969, P 19 46 792.6
Int. Cl. C08g *22/10, 22/14*
U.S. Cl. 260—47 CB 10 Claims

High molecular weight polyurethane elastomers having high resistance to hydrolysis and withstanding higher thermal stresses, obtained by reacting a dihydroxyl compound with an excess of a diisocyanate, dissolving the adduct thus obtained, reacting this adduct in solution with an excess of a diamine, and finally reacting the polyurethane polyurea with a substantially equivalent amount of a dicarboxylic acid dihalide. The elastomers can be spun to threads and fibers.

3,682,862

Patent Not Issued For This Number

3,682,863

BUTANE DIOL-TEREPHTHALIC-ISOPHTHALIC-SEBACIC ACID

John J. McHale, deceased, late of Blackwood, N.J., by Mary E. McHale, administratrix, Blackwood, N.J., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Continuation-in-part of applications Ser. No. 308,321, Sept. 12, 1963, and Ser. No. 347,679, Feb. 27, 1964. This application Feb. 24, 1969, Ser. No. 801,869
Int. Cl. C08g *17/08*
U.S. Cl. 260—75 R 3 Claims

A hot melt shoe adhesive composition consisting essentially of a copolyester of a diol component composed of at least 80 mole percent of butanediol and an acid mixture consisting essentially of 25–59 mole percent terephthalic acid, 25–65 mole percent of isophthalic acid and 5–25 mole percent of a C_6–C_{36} aliphatic dicarboxylic acid.

3,682,864

METHOD FOR THE PRODUCTION OF POLYESTERS, MORE PARTICULARLY LINEAR POLYALKYLENE TEREPHTHALATES, AND CATALYST EMPLOYED THEREFOR

Francesco Siclari and Edgardo Horak, Barlassina, and Mario Rosso, Milan, Italy, assignors to SNIA Viscosa Società Nazionale Industria Applicazioni Viscosa S.p.A., Milan, Italy, and Kanegafuchi Boseki Kabushiki Kaisha, Tokyo, Japan

No Drawing. Filed Mar. 16, 1970, Ser. No. 20,060
Claims priority, application Italy, Apr. 4, 1969, 15,136/69
Int. Cl. C08g *17/015*
U.S. Cl. 260—75 R 3 Claims

A method for the production of polyesters, more particularly linear polyalkylene terephthalates is disclosed, wherein the polycondensation step is carried out by using as a catalyst an association of elemental antimony with insoluble titanium compounds. Titanium hydride, carbide, nitride, boride or phosphide are the preferred titanium compounds. In addition to accelerating the polycondensation reaction, the catalyst system of this invention has no detrimental effect on the whiteness rating of the finished polymers.

3,682,865

POLYMERISATION PROCESS

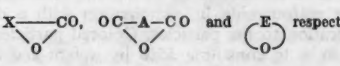
Victor F. Jenkins, St. Albans, and Geoffrey P. Newton and Michael J. Beeken, Luton, England, assignors to Laporte Industries Limited, London, England

No Drawing. Filed May 19, 1969, Ser. No. 825,930
Claims priority, application Great Britain, May 22, 1968, 24,519/68
Int. Cl. C08g *17/097, 17/017*
U.S. Cl. 260—75 EP 14 Claims

Novel polyesters characterised by the presence of, as the main chain-extending groups, groups of the type

$$—[—CO—A—CO—O—E—O—]_x—[—CO—X—O—]_y$$

where x and y are small integers (e.g. 1 to 4). The novel polyesters are produced by the reaction together in a controlled manner of a lactone and a polycarboxylic anhydride and an epoxide (oxirane or oxetane) of formulae



An active hydrogen atom compound is generally used as initiator. Etherification inhibitors and/or lactone polymerisation catalysts may be employed. The reaction is controlled so that the rate of consumption of each of the reactants is substantially identical.

3,682,866

POLYAMIDES HAVING IMPROVED AFFINITY FOR BASIC DYESTUFFS

John David Garforth, Manchester, England, assignor to Imperial Chemical Industries Limited, London, England

No Drawing. Filed Aug. 14, 1970, Ser. No. 70,616
Int. Cl. C08g *20/20*
U.S. Cl. 260—78 R 3 Claims

Synthetic linear polyamides having an improved affinity for basic dyestuffs containing dicarboxy metal cyclohexane monosulfonate moiety.

3,682,867

POLYUREA POLYMER PREPARATION FROM ORGANIC POLYISOCYANATES AND COMPLEX DERIVATIVES OF POLYAMINES WHEREIN THE PRIMARY AMINE GROUPS THEREOF ARE CONVERTED TO ALDIMINE OR KETIMINE GROUPS AND THE SECONDARY AMINE GROUP OR GROUPS THEREOF HAVE BEEN REACTED WITH ORGANIC ISOCYANATES

William E. Shackelford, 1130 Croswell St., and Warren J. Fullen, Rte. 2, both of Kankakee, Ill. 60901

No Drawing. Application Mar. 18, 1968, Ser. No. 714,009, which is a continuation-in-part of application Ser. No. 488,251, Sept. 17, 1965. Divided and this aplication May 6, 1970, Ser. No. 47,928
Int. Cl. C08g *22/02*
U.S. Cl. 260—77.5 CH 12 Claims

Polyamines having the primary amine groups thereof converted to aldimine or ketimine groups and at least one secondary amine group are reacted with equivalent amounts of organic isocyanates to yield new compounds or derivatives, the equivalents being based on the secondary amine and isocyanate groups. The resulting products are reacted with organic polyisocyanates to yield polymers especially useful as coatings.

3,682,868

PROCESS FOR THE MANUFACTURE OF ACRYLIC ACID COPOLYMER AND PRODUCT

Johannes Wollner, Kapellen Kreis Moers, Wolfgang Tietz, Hamburg-Harburg, and Wilhelm Neier, Homberg, Lower Rhineland, Germany, assignors to A.G. Rheinpreussen, Homberg, Germany

No Drawing. Filed May 21, 1970, Ser. No. 39,552

Int. Cl. C08f *15/00, 27/00*

U.S. Cl. 260—78.5 T 8 Claims

An acrylic acid-olefin copolymer having a chain structure in which the units of acrylic acid-olefin alternate and a process for manufacturing said copolymer comprising contacting a maleic anhydride-olefin copolymer with an alkali metal hydroxide wherein the mole ratio of maleic anhydride moiety in the copolymer to said hydroxide is about 1:1 in the presence of water and in the absence of decarboxylation catalyst at a temperature between 120 and 300° C. acidifying the resultant mixture and recovering said copolymer therefrom.

3,682,869

PROCESS FOR THE POLYMERIZATION OF 2-PYRROLIDONE WITH CARBON DIOXIDE AS ACTIVATOR

Peter A. Jarovitzky, Stamford, Conn., assignor to Radiation Research Corporation, Stamford, Conn.

No Drawing. Filed Sept. 3, 1970, Ser. No. 69,495

Int. Cl. C08g *20/16*

U.S. Cl. 260—78 P 3 Claims

In the polymerization of 2-pyrrolidone in the presence of an alkaline polymerization catalyst and carbon dioxide, the improvement which comprises adding said carbon dioxide to a concentrated reaction mass having a molar ratio of from about 1 to about 4 mols of 2-pyrrolidone per mol of alkaline polymerization catalyst and then diluting said concentrated, carbonated reaction mass with an amount of 2-pyrrolidone sufficient to provide at least 9 mols of total 2-pyrrolidone per mol of alkaline polymerization catalyst before said carbonated reaction mass is polymerized.

3,682,870

PROCESS FOR THE PREPARATION OF LINEAR, HIGH MOLECULAR WEIGHT, SULPHUR VULCANIZABLE COPOLYMER OF ETHYLENE, PROPYLENE AND 1,3-BUTADIENE AND CATALYST SYSTEMS USED THEREIN

Gino Dall'Asta and Antonio Carbonaro, Milan, Italo Borghi, Ferrara, and Alberto Greco, Milan, Italy, assignors to The B. F. Goodrich Company, New York, N.Y.

No Drawing. Filed Jan. 8, 1970, Ser. No. 1,538

Claims priority, application Italy, Jan. 15, 1969, 11,538/69; Feb. 7, 1969, 12,625/69

Int. Cl. C08f *1/56*

U.S. Cl. 260—80.7 14 Claims

Process for the preparation of linear, high molecular weight, sulphur vulcanizable copolymers of ethylene, propylene and butadiene in the presence of catalytic systems prepared in aromatic solvents and comprising hydrocarbon soluble vanadium compounds, organic aluminum compounds containing halogen, and the product of the reaction between dialkyl aluminum halides and oxygen compounds selected from the group consisting of water and tin oxides of the formula $R_3Sn—O—SnR_3$, also said catalytic systems.

3,682,871

LOW TEMPERATURE CURING VINYLIDENE-HALIDE-UNSATURATED MONOCARBOXYLIC ACID-N-ALKYLOL AMIDE POLYMERS

Bela K. Mikofalvy, Sheffield Lake, and Donald P. Knechtges, Middleburg Heights, Ohio, assignors to The B. F. Goodrich Company, New York, N.Y.

No Drawing. Filed June 10, 1970, Ser. No. 45,208

Int. Cl. C08f *15/40*

U.S. Cl. 260—80.71 6 Claims

Vinylidene halide polymers capable of being cured at low temperatures are prepared by the emulsion polymerization of one or more vinylidene halide monomers with a carboxylic acid monomer and an N-alkylol amide monomer in an aqueous system. The resulting polymers develop optimum or near optimum physical properties upon curing at room temperature or at temperatures up to about 225° F.

3,682,872

PERFLUORO(3-PHENOXYPROPYL VINYL ETHER) MONOMER AND COPOLYMERS MADE THEREFROM

Donald F. Brizzolara and Richard W. Quarles, Jr., Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Mar. 18, 1970, Ser. No. 20,807

Int. Cl. C08f *15/40*

U.S. Cl. 260—80.76 13 Claims

A novel perfluoro(3-phenoxypropyl vinyl ether) monomer and copolymers of said monomer with at least one fluorine containing ethylenically unsaturated comonomer, said copolymer containing about 0.2–3.0 mole percent of perfluoro(3-phenoxypropyl vinyl ether) units.

3,682,873

PROCESS FOR PRODUCING SPHERICAL STYRENE-ACRYLONITRILE COPOLYMER PARTICLES OF CONTROLLED PARTICLE DIAMETER

Yukio Hozumi, Yuzo Sonoyama, and Masaru Omata, Sakai, Japan, assignors to Daicel Ltd., Osaka, Japan

No Drawing. Filed Sept. 11, 1970, Ser. No. 71,343

Claims priority, application Japan, Sept. 17, 1969, 44/73,747

Int. Cl. C08f *15/04, 15/22*

U.S. Cl. 260—85.5 12 Claims

A process for preparing styrene-acrylonitrile copolymers in which a stirred mixture of styrene-acrylonitrile is preliminarily polymerized in bulk in the presence of catalyst until the conversion reaches to a value from 10 to 40% and then the reacted mixture is suspended and dispersed in an aqueous medium containing suspension stabilizer and the remaining monomer is substantially completely polymerized in the state of an aqueous suspension to form genuinely spherical copolymer particles having increased diameter which are useful for the preparation of a porous product by point-to-point adhesion of spherical particles.

3,682,874

PROCESS FOR THE PRODUCTION OF POLYMERIZATES OF VINYL CHLORIDE

Johann Bauer and Alex Sabel, Burghausen, Upper Bavaria, Germany, assignors to Wacker-Chemie G.m.b.H., Munich, Germany

No Drawing. Continuation-in-part of application Ser. No. 785,339, Dec. 19, 1968. This application Jan. 27, 1970, Ser. No. 6,325

Claims priority, application Germany, Dec. 20, 1967, P 17 45 569.5

Int. Cl. C08f *15/20, 1/08*

U.S. Cl. 260—87.5 C 1 Claim

An improvement in the precipitation polymerization of vinyl chloride with up to 30% of other polymerizable monomers including ethylene which comprises the steps of polymerizing vinyl chloride in the presence of a free-

radical polymerization catalyst in a solvent media in which the monomers are soluble and the polymerizates are insoluble under vinyl chloride polymerization conditions which involves the use of saturated organic compounds containing fluorine, carbon and possibly chlorine and hydrogen in which at least three of the aforesaid halogen atoms are bonded to at least one carbon atom, as said solvent media.

3,682,875

STABILIZED ANAEROBIC SEALANT COMPOSITION

Denis Joseph O'Sullivan and David John Stamper, Dublin, Ireland, assignors to Loctite (Ireland) Limited, Dublin, Ireland

No Drawing. Filed Sept. 22, 1970, Ser. No. 74,517
Int. Cl. C08f *3/64, 3/66, 15/16*
U.S. Cl. 260—89.5 R **14 Claims**

Anaerobic compositions composed of polymerizable acrylate ester monomers and peroxy polymerization initiators are stabilized by the incorporation therein of a stable nitroxide free radical.

3,682,876

POLYPERFLUOROCYCLOBUTADIENE

Richard W. Anderson and Hughie R. Frick, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Oct. 24, 1969, Ser. No. 869,338
Int. Cl. C08f *5/00*
U.S. Cl. 260—91.5 **17 Claims**

Disclosed are halogen terminated polyperfluorocyclobutadienes characterized by the formula:

wherein X is halogen and *n* is a number of greater than 1. The polymer is prepared by contacting a perfluoro-3,4-dihalocyclobutene, in which at least one of the halogens in the 3,4-position is bromine or iodine with mercury, in the presence of radiation of sufficient energy to activate the C—I or C—Br bond and cause coupling with another activated species.

3,682,877

PRODUCTION OF VINYL CHLORIDE POLYMER OF PREDETERMINED PARTICLE SIZE DISTRIBUTION AND APPARENT DENSITY

Arno Czekay, Knapsack, Bruno Kramer, Hurth, and Karl Kaiser, Bruhl, Germany, assignors to Knapsack Aktiengesellschaft, Knapsack, near Cologne, Germany

No Drawing. Filed Mar. 8, 1971, Ser. No. 122,175
Claims priority, application Germany, Mar. 24, 1970, P 20 14 016.3
Int. Cl. C08f *1/11, 3/30*
U.S. Cl. 260—92.8 W **10 Claims**

Production of a vinyl chloride polymer of predetermined particle size distribution and apparent density by subjecting vinyl chloride to polymerization in suspension, wherein monomeric vinyl chloride, placed in a reactor, is polymerized in aqueous dispersion, with agitation. More particularly, the vinyl chloride is produced by varying at least once the initial stirring velocity in the reactor during polymerization and conditional upon the particle size distribution determined from time to time for the polymer, the initial stirring velocity being either increased with the resultant formation of a final polymer containing an increased proportion of relatively coarse particles, or reduced with the resultant formation of a final polymer containing an increased proportion of fine particles, and by maintaining the varied stirring velocity until completion of the polymerization, if necessary or convenient.

3,682,878

Patent Not Issued For This Number

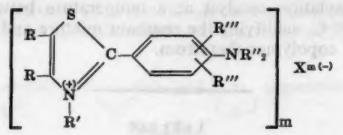
3,682,879

THIAZOLIUM-UREA COMPOUND COMPLEXES

Walter Reifschneider, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Original application Oct. 27, 1966, Ser. No. 589,859, now Patent No. 3,511,850, dated May 12, 1970. Divided and this application Aug. 29, 1969, Ser. No. 869,430
Int. Cl. C07c *127/00*
U.S. Cl. 260—96.5 R **7 Claims**

A urea compound complex of a compound which is a member selected from the group consisting of



wherein X represents a pharmaceutically-acceptable anion; R, each being taken separately, represents hydrogen or loweralkyl, or both R moieties, taken together, represent straight-chain alkylene being of from 3 to 6, both inclusive, carbon atoms; R′ represents primary loweralkyl; each R″ independently represents hydrogen or primary loweralkyl; each R‴ independently represents hydrogen, bromo, chloro, methoxy, or methyl; and *m* represents an integer equal to the valence of the anion X. The complexes are useful as agents for regulating the growth of plants.

3,682,880

PROTEIN FLAVOURING AGENTS PREPARED FROM *SYNSEPALUM DULCIFICUM*

Jan Nicolaas Brouwer, Gerardus Johannes Henning, and Hendrik van der Wel, Vlaardingen, Netherlands, assignors to Lever Brothers Company, New York, N.Y.

No Drawing. Filed Aug. 6, 1969, Ser. No. 848,108
Claims priority, application Luxembourg, Aug. 7, 1968, 56,660
Int. Cl. A23j *1/00;* **C07g** *7/00*
U.S. Cl. 260—112 R **14 Claims**

Process for solubilising miraculin, the active factor of the berries of *Synsepalum dulcificum*, by extraction with tannin-binding substances, protamines or water soluble polyamines.

3,682,881

FRACTIONATION OF PLASMA USING GLYCINE AND POLYETHYLENE GLYCOL

Lajos F. Fekete, Valinda, and Edward Shanbrom, Santa Ana, Calif., assignors to Baxter Laboratories, Inc., Morton Grove, Ill.

Continuation-in-part of applications Ser. No. 679,240, Oct. 30, 1967, and Ser. No. 834,883, June 19, 1969, now Patent No. 3,560,475. This application Oct. 2, 1970, Ser. No. 77,491
Int. Cl. C07g *7/00*
U.S. Cl. 260—112 B **7 Claims**

Concentrates of antihemophilic factor A and prothrombin complex are prepared from citrated blood plasma by an initial fractionation with glycine followed by multiple fractionations of the AHF-containing precipitate and the prothrombin complex-containing supernate with polyethylene glycol, the AHF-containing fraction being given an additional fractionation with glycine and the prothrombin complex-containing fraction being given an intermediate adsorption with tribasic calcium phosphate.

3,682,882

Patent Not Issued For This Number

3,682,883

PROCESS FOR EXTRACTION OF SOLANUM ALKALOIDS

Humberto Flores Beltran, Mexico City, Mexico, assignor to G. D. Searle & Co., Chicago, Ill.

No Drawing. Filed Feb. 12, 1970, Ser. No. 10,994

Int. Cl. C07c *47/18*

U.S. Cl. 260—210 R 11 Claims

Extraction of Solanum plants, preferably in the dry state, with an aqueous alcoholic solution containing 50–70% of the alcohol followed by basification of the resulting solution and extraction of the resulting precipitate affords an excellent yield of Solanum glycoalkaloids, e.g. solasonine, solamargine, demissine and tomatine, in a high state of purity. Suitable alcohols are ethanol, propanol and isopropanol.

3,682,884

NOVEL COMPOUNDS RELATED TO LINCOMYCIN, A PROCESS FOR MAKING THE SAME, AND A PROCESS FOR CONVERTING THEM TO LINCOMYCIN AND LINCOMYCIN ANALOGS

Barney J. Magerlein, Portage, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

No Drawing. Continuation-in-part of application Ser. No. 867,362, Oct. 17, 1969. This application May 6, 1970, Ser. No. 35,253

Int. Cl. C07c *47/18*

U.S. Cl. 260—210 R 4 Claims

Lincomycin is formed by tosylating methyl 1-thio-α-D-galacto-octopyranoside to form methyl 6-O-(p-toluenesulfonyl)-1-thio-α-D-galactopyranoside, acylating the resulting compound to form the peracylate, replacing the tosyl group with iodine to form peracylated methyl 6-deoxy-6-iodo-1-thio-α-D-galactopyranoside, replacing the iodo group by a nitro group to form peracylated methyl 6-deoxy-6-nitro-1-thio-α-D-galactopyranoside, treating the latter with acetaldehyde and sodium methoxide to form methyl 6-deamino-6-nitro-α-thiolincosaminide, reducing the latter with lithium aluminum hydride to form methyl α-thiolincosaminide, and acylating the latter with trans-1-methyl-4-propyl-L-2-pyrrolidinecarboxylic acid. By substituting other aldehydes and/or other 1-thio-α-D-galactopyranosides, analogs of lincomycin are obtained.

3,682,885

Patent Not Issued For This Number

3,682,886

ANTIBIOTIC 18.631 R.P.

Denise Mancy, Charenton, and Leon Ninet and Jean Preud'Homme, Paris, France, assignors to Rhone-Poulenc S.A., Paris, France

Filed Feb. 13, 1969, Ser. No. 798,980

Claims priority, application France, Feb. 14, 1968, 139,878; July 24, 1968, 160,462

Int. Cl. C07c *129/18*

U.S. Cl. 260—210 AB 3 Claims

The new acidic antibiotic 18,631 R.P. is prepared by aerobically cultivating *Streptomyces hygroscopicus* DS 9,751 (NRRL 3418), *Streptomyces albocinerescens* DS 21,647 (NRRL 3419) or *Streptomyces roseochromogenes*, var. *oscitans* DS 12,976 (NRRL 3504) on an aqueous nutrient medium containing assimilable sources of carbon, nitrogen and inorganic substances. The antibiotic is particularly effective against gram-positive microorganisms.

3,682,887

2-(ALK-2-ENYLTHIO)INOSINE-5'-PHOSPHATE DERIVATIVES

Yoshio Yoshioka, Osaka, and Kinichi Imai, Hisashi Aoki, and Jun Toda, Osaka-fu, Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

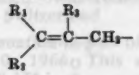
No Drawing. Filed Oct. 2, 1969, Ser. No. 863,332

Claims priority, application Japan, Oct. 2, 1968, 43/71,656; Oct. 5, 1968, 43/72,557; June 11, 1969, 44/45,996; June 24, 1969, 44/49,831

Int. Cl. C07d *51/54*

U.S. Cl. 260—211.5 R 9 Claims

A 2 - (alk - 2 - enylthio)inosine-5'-phosphate whose alk-2-enyl group is represented by the formula



wherein R_1, R_2 and R_3 represent a hydrogen atom or methyl group has excellent ability for improving and/or enhancing the flavor of foods and beverages. Moreover, there is a significant synergistic action between these compounds and monosodium glutamate. Also provided are novel starting materials for preparing these compounds.

3,682,888

REACTION PRODUCT OF 7-CHLORO-1-METHYL-5-PHENYL - 1,4 - 3H - BENZODIAZEPIN-2(1H)-ONE WITH CHLORAL HYDRATE AND PROCESS

Ctirad Podesva, 3333 Maplewood Ave., and Kitty Vagi, 434 Grosvenor, both of Montreal 6, Quebec, Canada

Continuation of application Ser. No. 864,239, July 24, 1969. This application Oct. 20, 1970, Ser. No. 82,497

Int. Cl. C07d *53/06*

U.S. Cl. 260—239.3 10 Claims

A new substance having pharmaceutical activity is prepared by reacting chloral hydrate and 7-chloro-1-methyl-5-phenyl-1,4-3H-benzodiazepin-2(1H)-one. The molecular formula of the new substance, which has a M.P. of about 110° C., is $C_{18}H_{16}Cl_4N_2O_3$. I.R. spectrum (see drawing) shows absorption bands among others at about 3430, and 1670 cm.$^{-1}$. This compound exhibits tranquilizing, anti-convulsive and muscle relaxant properties.

3,682,889

SUBSTITUTED DIAZIRIDINES AND DIAZIRINES

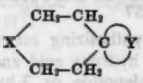
Robert J. Sauer, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Continuation-in-part of application Ser. No. 582,242, Sept. 27, 1966. This application Mar. 2, 1970, Ser. No. 15,930

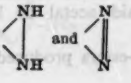
Int. Cl. C07d *23/00, 57/00*

U.S. Cl. 260—239 AA 12 Claims

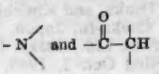
Alicyclic primary amines are reacted with alkali metal or tertiary alkyl hypohalites and the resulting product is reacted with ammonia to produce diaziridines. The diaziridines can be dehydrogenated by means of an alkali metal hypohalite to produce the corresponding diazirine that function as blowing agents for foaming polycaprolactam, polyvinyl chloride, polyethylene and other such polymers. The compounds have the formula



wherein Y is selected from the group consisting of



X is R—Z, wherein Z is selected from the group consisting of



provided that when Z is

R is a hydrocarbon radical of from 1 to 10 carbon atoms free of olefinic unsaturation and provided further that when Z is

Y is

and R is selected from the group consisting of R'O— and R'R''N— wherein R' and R'' are hydrocarbon radicals of from 1 to 10 carbon atoms free of olefinic unsaturation, and when Y is

R is selected from the group consisting of R'O—, R'NH— and R'R''N— wherein R' and R'' are hydrocarbon radicals of from 1 to 10 carbon atoms; chlorine; OM, wherein M is alkali metal; OH, and NH_2.

3,682,890

Patent Not Issued For This Number

3,682,891

METHOD OF MAKING CARDENOLIDE-3-OXY-ESTERS OF AN HYDROXY ACID

Kurt Radscheit, Kelkheim, Taunus, Werner Fritsch, Neuenhain, Taunus, Werner Haede and Ulrich Stache, Hofheim, Taunus, and Ernst Lindner, Frankfurt am Main, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed Jan. 9, 1970, Ser. No. 1,883

Claims priority, application Germany, Jan. 14, 1969, P 19 01 484.7

Int. Cl. C07c *173/00*

U.S. Cl. 260—239.57 **1 Claim**

A method for synthesizing esters in which the acid moiety is that of a hydroxy acid and the alcohol moiety is a 3-hydroxy-cardenolide or 3-hydroxy-bufadienolide, by esterifying the sterol with an acid anhydride or an acid chloride of the hydroxy acid, the hydroxy groups of which have been acetalized or ketalized, and then selectively removing said acetal or ketal groups by acid hydrolysis.

Cardi-active oxy-esters produced by this method.

3,682,892

7-HYDROXY LOWER ALKYL BENZODIAZEPINES

Robert Ye-Fong Ning, West Caldwell, and Leo Henryk Sternbach, Upper Montclair, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Filed Dec. 23, 1970, Ser. No. 101,184

Int. Cl. C07d *53/06*

U.S. Cl. 260—239 BD **23 Claims**

The present invention relates to 7-hydroxy lower alkyl benzodiazepines, compounds of biological interest as muscle relaxants, sedatives, and anti-convulsants.

3,682,893

SULFONAMIDE AZIRIDINYL COMPOUNDS

Giuliana C. Tesoro, Dobbs Ferry, N.Y., assignor to J. P. Stevens & Co., Inc., New York, N.Y.

No Drawing. Original application June 1, 1965, Ser. No. 460,480, now Patent No. 3,520,889, dated July 21, 1970. Divided and this application May 11, 1970, Ser. No. 36,091

Int. Cl. C07d *23/02, 23/06*

U.S. Cl. 260—239 E **6 Claims**

Sulfonamide aziridinyl compounds containing one or more aziridinyl groups and methods of producing same. The compounds are suitable for treating textile materials, as curing agents, and for the preparation of polymers.

3,682,894

PROCESS FOR PREPARING 3-OXO-$\Delta^{4,6}$-STEROIDS

Hugh L. Dryden, Jr., Deerfield, Ill., assignor to G. D. Searle & Co., Chicago, Ill.

No Drawing. Filed Feb. 24, 1970, Ser. No. 13,795

Int. Cl. C07c *173/00*

U.S. Cl. 260—239.57 **6 Claims**

3-oxo-$\Delta^{4,6}$-steroids are prepared from 3-hydroxy-Δ^5-steroids by converting the Δ^5-compounds to the chlorobromide, then oxidizing the hydroxy group to the ketone, and finally dehydrohalogenating to obtain the desired diene final product.

3,682,895

SYNTHESIS OF 3-HYDROXY-5-BUFA-20,22-DIENOLIDE

George R. Pettit, 6232 Bret Hills Drive, Paradise Valley, Ariz. 85253; Dyral C. Fessler, R.D. 1, Warner Road, Norwich, N.Y. 13815; and Kenneth D. Paull, 8306 Roanoke Ave., Apt. 4, Takoma Park, Md. 20012

No Drawing. Filed July 17, 1970, Ser. No. 56,005

Int. Cl. C07c *173/04*

U.S. Cl. 260—239.57 **9 Claims**

There is provided a novel method of synthesizing 5α-bufadienolides, which are useful intermediates in the total synthesis of bufalin, a cardiac active compound. Epiandrosterone acetate is converted into 3β - acetoxy-5α-pregnane-21-al which undergoes chain extension to methyl 3β-acetoxy-20-formyl-21-nor-5α-cholanate which is ring closed to form the 3β - acetoxy-5α-buf-20(21)-enolide which is dehydrogenated to the corresponding bufadienolide.

3,682,896

PREPARATION OF 6-ACYLAMINOPENICILLANIC ACIDS

Kenneth David Hardy, Horsham, England, assignor to Beecham Group Limited, Brentford, Middlesex, England

No Drawing. Filed Feb. 10, 1970, Ser. No. 10,286

Claims priority, application Great Britain, Feb. 13, 1969, 7,756/69

Int. Cl. C07d *99/16*

U.S. Cl. 260—239.1 **5 Claims**

6-aminopenicillanic acid and 6-acylaminopenicillanic acids are prepared free from immunogenic macromole-

cules, for use in producing semi-synthetic penicillins, by a reaction under anhydrous conditions avoiding the use of enzymes and without hydrolytic cleavage of the β-lactam ring structure. The preferred process includes the use of a nucleophile in at least a catalytic amount for treating the starting material. A substance may also be employed which is both a nucleophile and an acid acceptor.

3,682,897

FUSED BI- AND TRICYCLIC, DI-, TRI- AND THIODIAZA COMPOUNDS

Marcel K. Eberle, Madison, and William J. Houlihan, Mountain Lakes, N.J., assignors to Sandoz-Wander, Inc., Hanover, N.J.

No Drawing. Original application Oct. 17, 1969, Ser. No. 867,376. Divided and this application Mar. 19, 1971, Ser. No. 126,331

Int. Cl. C07d *53/00, 53/02, 93/40*
U.S. Cl. 260—239.3 4 Claims

Fused bi- and tricyclic, di-, tri- and thiodiaza compounds, e.g. 2,3,3a,10-tetrahydro - 3 - phenylbenzo[b]pyrrolo[2,3-e] [1,4]diazepin-4(3H)-one prepared by treating a corresponding substituted pyridine or pyroline with a substituted aniline o-phenylenediamine, ethylenediamine or diaminopropane. The compounds are useful as tranquilizers and hypotensives.

3,682,898

17-OXYGENATED 7α-METHYL-2,3-EPITHIO-5α-ANDROSTANES

Paul D. Klimstra, Northbrook, Ill., assignor to G. D. Searle & Co., Chicago, Ill.

No Drawing. Filed Aug. 13, 1969, Ser. No. 849,872

Int. Cl. C07c *173/00*
U.S. Cl. 260—239.5 2 Claims

Anabolic and androgenic 17-oxygenated-7α-methyl-2,3-epithio-5α-androstanes lacking potent anti-estrogenic side-effects are produced by reaction of the corresponding 2,3-epoxy compounds with hydrothiocyanic acid followed by cyclization of the 2/3-hydroxy/thiocyano intermediates.

3,682,899

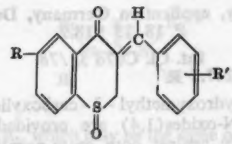
1-OXO - 3-BENZAL-THIOCHROMANONE DERIVATIVES AND A PROCESS FOR THE PRODUCTION OF THESE COMPOUNDS

Motohiro Nishio, Kawasaki-shi, Teiichiro Ito, Tokyo, Takemi Koeda, Kawasaki-shi, and Uichi Shibata, Fujisawa-shi, Japan, assignors to Meiji Seika Kaisha, Ltd., Tokyo, Japan

No Drawing. Filed June 20, 1969, Ser. No. 835,236

Int. Cl. C07d *65/14*
U.S. Cl. 260—240 F 8 Claims

1-oxy-3-benzal-thiochromanone derivatives of the general formula:



wherein R is a hydrogen atom, a halogen atom or an alkyl group of 1 to 4 carbon atoms; and R′ is a hydrogen atom, a halogen atom or a cyano group or a lower alkyl group of 1 to 4 carbon atoms, which are new and useful in inhibiting or suppressing the development of edema and hence have an anti-inflammatory effect, and a process of preparing the above-mentioned 1-oxy-3-benzal-thiochromanone derivatives by oxidizing the corresponding 3-benzal-thiochromanone derivatives.

3,682,900

STILBENE DERIVATIVES

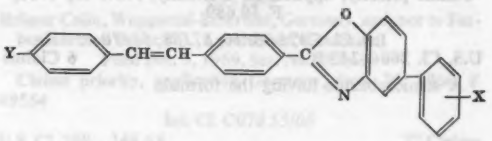
Peter Liechti, Binningen, Erwin Maeder, Aesch, Basel-Land, Leonardo Guglielmetti, Birsfelden, and Adolf Emil Siegrist, Basel, Switzerland, assignors to Ciba-Geigy AG, Basel, Switzerland

No Drawing. Continuation-in-part of application Ser. No. 580,592, Sept. 20, 1966. This application Apr. 21, 1969, Ser. No. 818,131

Claims priority, application Switzerland, Sept. 27, 1965, 13,277/65

Int. Cl. C07d *85/48*
U.S. Cl. 260—240 CA 3 Claims

New stilbene derivatives of the formula



in which X represents a member selected from the group consisting of a sulphonic acid group, a water-soluble salt of the sulphonic acid group and a sulphonamide group, and Y represents a member selected from the group consisting of a carboxylic acid group and a water-soluble salt of the carboxylic acid group. The compounds of the present invention are optical brighteners which are especially useful in washing agents for organic fibrous materials.

3,682,901

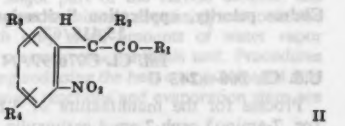
PROCESS FOR INDOLES (RING CLOSURE OF NITRO COMPOUNDS)

Arthur Gaudens Mohan, 1280 Pleasant Valley Way, West Orange, N.J. 07052, and Richard Keith Madison, 50 Chestnut Hill Drive, Murray Hill, N.J. 07974

No Drawing. Filed July 30, 1969, Ser. No. 846,246

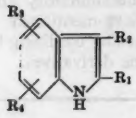
Int. Cl. C07d *27/56*
U.S. Cl. 260—240 D 8 Claims

Process for preparing 2-substituted indoles (I) by reacting carbon monoxide at elevated temperature and superatmospheric pressure in the presence of a co-catalyst composition, of which 5% palladium on carbon with a Lewis acid such as ferric chloride is representative, with an o-nitrobenzyl ketone (II):



II

to form:



I

where R_1 is alkyl, aralkyl, aryl or styryl; R_2 is hydrogen, alkyl or aryl, and R_3 and R_4 typically are hydrogen or alkyl.

3,682,902

SEMICARBAZIDE WITH SUBSTITUTED PHENYL GROUP AND N-HETEROCYCLIC RING

Harald Oertel, Odenthal, Ulrich Eholzer, Cologne, and Friedrich-Karl Rosendahl, Leverkusen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

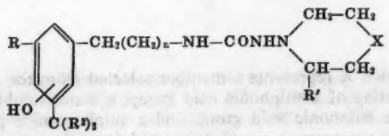
No Drawing. Continuation-in-part of abandoned application Ser. No. 676,082, Oct. 18, 1967. This application June 8, 1970, Ser. No. 44,537

Claims priority, application Germany, Nov. 16, 1966, F 50,689

Int. Cl. C07d *93/10, 87/38, 51/70*

U.S. Cl. 260—243 B 6 Claims

A semicarbazide having the formula



wherein

R is alkyl with 1 to 12 carbon atoms, preferably alkyl with 1 to 4 carbon atoms such as methyl or tertiary butyl;

R^2 is alkyl with 1 to 8 carbon atoms;

the —OH group is in the 2 or 4 position;

n is an integer from 0 to 12, preferably 0 or 2;

R′ is hydrogen or alkyl with 1 to 4 carbon atoms and preferably methyl; and

X is a divalent inorganic radical, preferably >N—NH_2, —O—, or >SO_2.

Such compounds are useful to stabilize isocyanates against discoloration during storage.

3,682,903

CEPHALOSPORANIC ACID DERIVATIVES AND PROCESS FOR THEIR MANUFACTURE

Hans Bickel, Binningen, Rolf Bosshardt, Arlesheim, Bruno Fechtig, Binningen, Johannes Mueller, Arlesheim, and Heinrich Peter, Riehen, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Filed Oct. 28, 1968, Ser. No. 771,330

Claims priority, application Switzerland, Nov. 3, 1967, 15,418/67

Int. Cl. C07d *99/24*

U.S. Cl. 260—243 C 5 Claims

Process for the manufacture of 3-formyl-7-acylamino (or 7-amino)-ceph-2-em-4-carboxylic acids, wherein 3-hydroxymethyl-7-acylamino (or 7-amino) - ceph - 2 - em-carboxylic acids are oxidized.

3,682,904

MIXTURE OF MONO AND DI-ORTHOTERTIARY HEXYL PARA-CRESOLS

Ronald B. Spacht, Hudson, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

No Drawing. Continuation of application Ser. No. 540,837, Apr. 7, 1966. This application May 16, 1969, Ser. No. 825,439

Int. Cl. C07c *39/06*

U.S. Cl. 260—624 R 2 Claims

A composition comprising a mixture of mono-orthotertiary hexyl para-cresol and di-orthotertiary hexyl para-cresol which is particularly useful as an age resistor for rubber.

3,682,905

PHOSPHINO, PHOSPHONODITHIOIC ACID SECONDARY OR TERTIARY HETEROCYCLIC AMINE SALTS

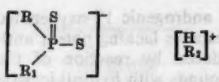
Stanley B. Mirviss, Stamford, Conn., and Melvin M. Schlechter, Merrick, N.Y., assignors to Stauffer Chemical Company, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 806,692, Mar. 12, 1969, which is a continuation-in-part of application Ser. No. 517,950, Jan. 3, 1966. This application Sept. 2, 1970, Ser. No. 69,158

Int. Cl. C07d *87/46*

U.S. Cl. 260—247.1 8 Claims

Novel organophosphorus amine salts of the formula



wherein R and R_1 are selected from the group consisting of alkyl of from 1 to 20 carbon atoms, phenyl and benzyl; and R_2 is an amine selected from the group consisting of secondary and tertiary heterocyclic amines.

3,682,906

CERTAIN 2 - HYDROXYMETHYL-3-CARBOXYLIC ACID AMIDOQUINOXALINE-DI-N-OXIDES (1,4)

Florin Seng, Cologne-Buchheim, Kurt Ley, Odenthal-Gloebusch, and Karl Georg Metzer, Wuppertal-Elberfeld, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Nov. 28, 1969, Ser. No. 880,968

Claims priority, application Germany, Dec. 11, 1968, P 18 13 918.9

Int. Cl. C07d *51/78*

U.S. Cl. 260—247.5 R 30 Claims

Certain 2 - hydroxymethyl - 3 - carboxylic acid amidoquinoxaline-di-N-oxides(1,4) are provided having antibacterial activity against both gram-negative and gram-positive organisms. The compounds are useful also in animal feeds and drinking water and are made by reacting the corresponding lactone with ammonia or an amine in a diluent at 0° to 80° C.

3,682,907

4,4'-BIS(2-β-SULFOETHYLAMINO-4-AMINO-1,3,5-TRIAZINE-6-YLAMINO)STILBENE-2,2'-DISULFONIC

Masaaki Ohkawa, Takatsuki; Masatoshi Matsuo, Ibaraki; Tadao Sakaguchi, Taisho-ku, Osaka, and Syozi Sato, Hirakata, all of Japan, assignors to Sumitomo Chemical Co., Ltd., Osaka, Japan

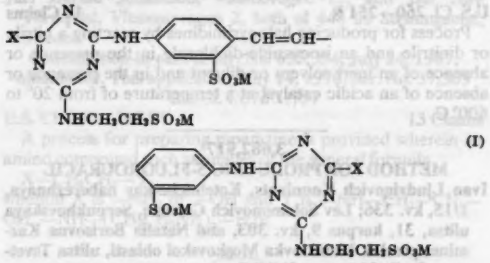
Filed Sept. 2, 1969, Ser. No. 854,773

Claims priority, application Japan, Sept. 12, 1968, 43/66312

Int. Cl. C07d 99/02

U.S. Cl. 260—240 B 7 Claims

Novel compounds of the formula



(I)

wherein X is morpholino or alkanolamino and M is a hydrogen atom or an alkali metal, useful as optical brightening agents, and process for the production thereof, whitened textile materials and process for production thereof, and whitened and resin-finished textile materials and process for production thereof.

3,682,908

METHOD OF PRODUCING HALOGENATED PHENOXY-S-TRIAZINES

Roshdy Ismail, Spich, Germany, assignor to Dynamit Nobel AG, Troisdorf (Bez. Cologne) Germany

Continuation of Ser. No. 737,129, June 14, 1968, abandoned. This application May 5, 1970, Ser. No. 34,900

Claims priority, application Germany, June 15, 1967, D 53345

Int. Cl. C07d 55/50

U.S. Cl. 260—248 CS 10 Claims

Production of halogenated phenoxy-s-triazines by the reaction of halogenated phenols and C-chlorides of s-triazines in the presence of catalytic quantities of tertiary amine or carbonamide compounds or quaternary ammonium salts thereof.

3,682,909

S-TRIAZINE DERIVATIVES

Hermann Hagemann, Cologne, Germany, assignor to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

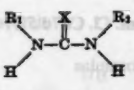
Filed May 1, 1970, Ser. No. 33,930

Claims priority, application Germany, May 31, 1969, P 19 27 921.1

Int. Cl. C07d 55/38

U.S. Cl. 260—248 NS 9 Claims

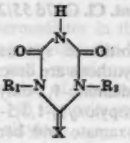
s-triazine derivatives are obtained by reacting a compound of the formula



wherein R_1 and R_2, which may be the same or different, each represents hydrogen or an optionally substituted aliphatic, cycloaliphatic, araliphatic, aromatic or heterocyclic radical and X represents oxygen or sulphur

with a substantially equimolar quantity of N-chlorocarbonyl isocyanate at a temperature of from about −100° C. to about +200° C., optionally in the presence of an inert organic solvent.

The novel compounds that can be obtained by the process according to the invention have the general formula



wherein X represents oxygen or sulphur and R_1 and R_2, which may be the same or different when X represents sulphur but which must be different when X represents oxygen, each represents hydrogen or an optionally substituted aliphatic, cycloaliphatic, araliphatic, aromatic or heterocyclic radical.

They can be used as herbicides.

3,682,910

PROCESS FOR PRODUCING THIONOTHIOL-PHOSPHORIC, -PHOSPHONIC, AND -PHOSPHINIC ACID ESTERS

Reimer Colln, Wuppertal-Elberfeld, Germany, assignor to Farbenfabriken Bayer AG., Leverkusen, Germany

Filed Dec. 5, 1969, Ser. No. 882,690

Claims priority, application Germany, June 26, 1966, F 49554

Int. Cl. C07d 55/08

U.S. Cl. 260—248 AS 27 Claims

Reacting paraformaldehyde, benzazimide and symmetrical or asymmetrical alkyl, alkenyl, cycloalkyl, alkoxy, cycloalkoxy and/or aryl di-substituted thionothiol -phosphoric, phosphonic or -phosphinic acid, or one of the latter two mentioned compounds (i.e., benzazimide or thionothiol acid) with the corresponding formaldehyde condensation product of the other, in the presence of hydrogen chloride, to form the corresponding known S-(3,4-dihydro- -phosphoric, -phosphonic or -phosphinic acid esters which possess insecticidal properties.

3,682,911

PROCESS FOR PREPARING MELAMINE FROM UREA

Petrus J. C. Kaasenbrood, Sittard, and Petrus J. M. Van Nassau, Geleen, both of Netherlands, assignors to Stamicarbon N.V., Heirlen, Netherlands

Filed Feb. 3, 1969, Ser. No. 796,093

Claims priority, application Netherlands, Feb. 2, 1968, 6801577

Int. Cl. C07d 55/28

U.S. Cl. 260—249.7 A 4 Claims

An integrated process for the manufacture of melamine in combination with the manufacture of urea is disclosed, wherein the urea product from the urea synthesis unit is used as feed to the melamine synthesis unit. In the process described, the ammonia and carbon dioxide by-products from the melamine plants are processed by condensing the same to form a dilute solution of ammonium carbamate and ammonia and desorbing the resulting solution at urea synthesis pressures, to release a major part of the carbon dioxide, and passing the resulting gaseous mixture containing ammonia and carbon dioxide with only small amounts of water vapor directly to the high pressure urea synthesis unit. Procedures for suitably recovering and using the heat energy released during the various chemical reactions and evaporation steps are also described.

3,682,912

DI-HYDRO TRIAZINE DERIVATIVES

Patrick Mamalis, Reigate, and Dennis James Outred, London, both of England, assignors to Beecham Group Limited, Brentford, Middlesex, England

Filed Dec. 18, 1969, Ser. No. 886,343
Int. Cl. G07d 55/20
U.S. Cl. 260—249.9 10 Claims

Anti-malarial N-substituted symmetrical di-hydrotriazine derivatives and their synthesis are described. A representative compound is 4,6-diamino-1,2-dihydro-2,2-dimethyl-1-[3-(3,4-dichlorophenylpropyloxy)]-1,3,5-triazine. HBr prepared via benzyl benzhydroxamate and benzyloxydiguanide base. The compounds also have other anti-microbial activity.

3,682,913

PRODUCTION OF 5-AMINOPYRAZOLES SUBSTITUTED IN THE 1-POSITION

Hans Juergen Sturm, and Herbert Armbrust, both of Gruenstadt, Germany, assignors to Badische Anilin & Soda-Fabrik Aktiengesellschaft, Ludwigshafen, Rhine, Germany

Filed March 16, 1970, Ser. No. 20,129
Claims priority, application Germany, March 19, 1969, P 19 13 845.5
Int. Cl. C07d 51/42
U.S. Cl. 260—256.4 N 8 Claims

The production of 5-aminopyrazoles by reaction of malonodialdehyde dioxime with nitrous acid followed by reaction of the product thus obtained with a hydrazine compound. The compounds which can be prepared by the process according to the invention are valuable starting materials for the production of dyes and pesticides.

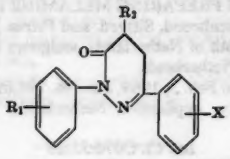
3,682,914

2,6-DIPHENYL-4,5-DIHYDRO-3(2H)-PYRIDIZINONE DERIVATIVES

Hisao Yamamoto, No. 10-4, Kawahigashi-cho, Nishinomiyashi, Hyogo; Toshio Atsumi, No. 14-1, Yoneya Aza Ikenoshita, Takarazuka-shi, Hyogo, and Hiroshi Awata, No. 32, Honcho 9-chome, Toyonaka-shi, Osaka, all of Japan

Filed Nov. 21, 1968, Ser. No. 777,882
Claims priority, application Japan, Nov. 22, 1967, 42/75259
Int. Cl. C07d 51/04
U.S. Cl. 260—250 A 20 Claims

A novel 2,6-diphenyl-4,5-dihydro-3(2H)-pyridazinone derivative having remarkable anti-inflammatory, anti-tuberculous and anti-virus actions represented by the general formula:



wherein R_1 represents a lower alkyl group of from 1–4 carbon atoms, a lower alkoxyl group of from 1–4 carbon atoms, or a lower alkylthio group of from 1–4 carbon atoms; R_2 represents a hydrogen or a methyl group; and X represents a halogen atom and a lower alkoxy group which is prepared by reacting a hydrazine derivative with a β-benzoylpropionic acid derivative.

3,682,915

Patent Not Issued For This Number

3,682,916

PROCESS FOR THE PRODUCTION OF HALOPYRIMIDINES

Kurt Findeisen; Rudolf Braden, and Hans Holtschmidt, all of Leverkusen, Germany, assignors to Farbenfahriken Bayer Aktiengesellschaft, Leverkusen, Germany

Continuation of Ser. No. 809,952, March 24, 1969, abandoned, Continuation-in-part of Ser. No. 680,956, Nov. 11, 1967, abandoned. This application Aug. 5, 1970, Ser. No. 61,469
Claims priority, application Germany, April 20, 1967, F 52 193; July 2, 1968, P 17 70 774.3
Int. Cl. C07d 51/36
U.S. Cl. 260—251 R 10 Claims

Process for producing halopyrimidines by reacting a nitrile or dinitrile and an isocyanide-dichloride in the presence or absence of an inert solvent or diluent and in the presence or absence of an acidic catalyst at a temperature of from 20° to 600° C.

3,682,917

METHOD FOR PRODUCING 5-FLUOROURACIL

Ivan Ljudvigovich Knuniants, Kotelnicheskay naberezhnaya, 1/15, kv. 336; Lev Solomonovich German, Serpukhovskaya ulitsa, 31, korpus 9, kv. 303, and Natalia Borisovna Kazmina, poselok Malaklovka Moskovskoi oblasti, ulitsa Tsvetnaya 5, all of Moscow, U.S.S.R.

Filed March 25, 1970, Ser. No. 22,705
Int. Cl. C07d 51/30
U.S. Cl. 260—260 4 Claims

The present invention concerns the method for producing 5-fluorouracil. In accordance with the said method uracil is brought to interact with fluorine in diluent medium which partly or completely dissolves uracil without interacting with fluorine, in an atmosphere of inert gas with subsequent separation of the formed end product. It is preferable to employ acetic acid as diluent, and nitrogen as the inert gas. The end product 5-fluorouracil finds wide application in cancer therapy of the mammary gland and gastrointestinal tract.

It is also the initial product for the synthesis of 5-fluor-2′-desoxyuridine and N-2′-tetrahydrofuryl-5-fluorouracil which are also employed in medicine as antitumor agents. Besides the above, 5-fluorouracil finds application for biochemical investigations.

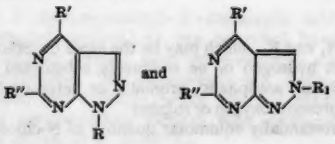
3,682,918

N-SUBSTITUTED PYRAZOLO-PYRIMIDINES

Jean Druey, Riehen, and Paul Schmidt, Therwil, both of Switzerland, assignors to Ciba-Geigy Corporation, New York, N.Y.

Division of Ser. No. 649,118, June 27, 1967, Pat. No. 3,551,428, Division of Ser. No. 292,783, July 3, 1967, Pat. No. 3,399,196, which is a continuation-in-part of Ser. No. 815,826, May 26, 1959, abandoned, which is a continuation-in-part of Ser. No. 775,334, Nov. 21, 1958, abandoned, which is a continuation-in-part of Ser. No. 667,042, June 20, 1957, Pat. No. 2,980,677, said Ser. No. 292,783, is a continuation-in-part of Ser. No. 815,824, May 26, 1959, Pat. No. 3,187,006, which is a continuation-in-part of Ser. No. 775,356, Nov. 21, 1958, abandoned, which is a continuation-in-part of Ser. No. 637,895, Feb. 4, 1957, abandoned. This application May 13, 1970, Ser. No. 48,639
Claims priority, application Switzerland, Feb. 10, 1956, 29762/56
Int. Cl. C07d 57/16
U.S. Cl. 260—256.4 F 1 Claim

Compounds of the formulas



in which R_1 stands for branched alkyl, alkenyl or cycloalkyl having at least three carbon atoms or hydroxyalkyl. R′ stands for free or substituted amino, hydrazino, halogen or free or etherified mercapto, and R″ stands for hydrogen, alkyl or for R′ for example: the 2-ispropyl-4-mercapto-pyrazolo[3,4-d]pyrimidine.

Use: Coronary dilatating, diuretic, analgetic or antibacterial agents.

3,682,919

PROCESS FOR THE PREPARATION OF PIPERAZINE

Jarl Harald Johansson, Vallmovagen 15, and Jan Tore Tornqvist, Vitmossevagen 2, both of 444 00 Stenungsund, Sweden

Continuation-in-part of Ser. No. 655,354, July 24, 1967, abandoned. This application May 14, 1970, Ser. No. 37,309

Int. Cl. C07d *51/64*

U.S. Cl. 260—268 SY **13 Claims**

A process for preparing piperazine is provided wherein an amino compound such as amines of the general formula

$X—CH_2CH_2—Y$

wherein X is $—NH_2$ or —OH and Y is $—NH—CH_2—CH_2—OH$, $—NH—(CH_2CH_2NH)_n—H$ or

wherein n is 0 to 3 or mixtures of such amines obtained by reaction between ethylene oxide and ammonia, is heated in the presence of ammonia, if necessary, and a Ni—MgO catalyst at a temperature from about 200° to about 275° C to a percent conversion of at least 65 percent to reaction products. The reaction can be carried out in the absence of added hydrogen.

3,682,920

(PHENYL PIPERAZYL ALKYL) 3,4-DIHYDROCARBOSTYRIL

Herbert John Havera, Edwardsburg, Mich., assignor to Miles Laboratories, Inc., Elkhart, Ind.

Division of Ser. No. 803,950, March 3, 1969, Pat. No. 3,629,266. This application Nov. 9, 1970, Ser. No. 88,127

Int. Cl. C07d *51/70*

U.S. Cl. 260—268 BQ **7 Claims**

1-Substituted derivatives of 3,4-dihydrocarbostyril that are useful as analgesic agents. These compounds are prepared by reacting a 3,4-dihydrocarbostyril or substituted 3,4-dihydrocarbostyril with a suitable haloalkylamine.

3,682,921

DIBENZOFURYL KETONES

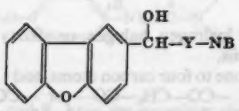
Harvey B. Hopps, West Allis, Wis.; Dennis Jackman, University, Miss., and John H. Biel, Lake Bluff, Ill., assignors to Aldrich Chemical Company, Inc., Milwaukee, Wis.

Continuation-in-part of Ser. No. 693,765, Dec. 27, 1967, abandoned, which is a continuation-in-part of Ser. No. 605,995, Dec. 30, 1966, abandoned, which is a continuation-in-part of Ser. No. 462,066, June 7, 1965, abandoned. This application May 19, 1971, Ser. No. 145,068

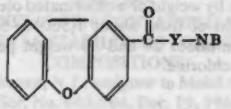
Int. Cl. C07d *51/70*

U.S. Cl. 260—268 TR **5 Claims**

Compounds of the formula



which possess hypotensive activity and are useful for treating hypertension in mammals and compounds of the formula



which are useful as intermediates in the preparation of the foregoing hypotensive agents and also in some cases exhibit hypotensive, sedative and muscle relaxant activity and processes for the preparation of the foregoing compounds. In the foregoing formulas, NB is a primary or secondary amino radical and Y is (lower) alkylene.

3,682,922

N-ACYL-N-[(N′,N′-DISUBSTITUTED AMINO)-ALKYL]-1-ADAMANTYLMETHYLAMINES

Paul D. Klimstra, Northbrook, Ill., assignor to G. D. Searle & Co., Chicago, Ill.

Filed Jan. 16, 1969, Ser. No. 791,779

Int. Cl. C07d *29/30*

U.S. Cl. 260—268 PC **9 Claims**

The reduction of N-[(N′, N′-disubstituted amino)-alkyl]adamantane-1-carboxamides affords the corresponding diamines, which are acylated to yield N-acyl-N-[(N′,N′-disubstituted amino)alkyl]-1-adamantylmethylamines. The latter compounds are useful as pharmacological agents, as is evidenced by their anti-inflammatory, anti-microbial and anti-spasmodic properties.

3,682,923

NICKEL COMPLEX OF THE DIOXIME OF 2-ACETOACETYLAMINO-6-ETHOXYBENZOTHIHZOLE

Heinrich Hiller, Mannheim, and Peter Dimroth, Ludwigshafen, both of Germany, assignors to Badische Anilin-& Soda-Fabrik Aktiengesellschaft, Ludwigshafen, Rhine, Germany

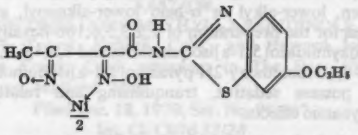
Filed Sept. 10, 1969, Ser. No. 856,805

Claims priority, application Germany, Sept. 14, 1968, P 17 94 150.3

Int. Cl. C07d *91/46*; C07f *15/04*; C09d *5/10*

U.S. Cl. 260—299 **1 Claim**

A nickel complex pigment dye having the formula:



which is eminently suitable as a pigment, particularly for use in acrylic resin coating compositions, and which has excellent properties of light fastness and resistance to weather and over-spraying.

3,682,924

READILY PROCESSABLE, RIGID VINYL CHLORIDE POLYMER COMPOSITIONS CONTAINING CHLORINATED OLEFIN POLYMER WAX

Robert R. Blanchard, Port Allen, La., and Warren L. Young, Baton Rouge, La., assignors to Dow Chemical Company, Midland, Mich.

Continuation-in-part of Ser. No. 767,485, Oct. 14, 1968, abandoned, which is a continuation-in-part of Ser. Nos. 560,975, June 6, 1966, abandoned, and Ser. No. 544,115, Aug. 21, 1966, abandoned. This application Feb. 10, 1971, Ser. No. 114,384

Int. Cl. C08f *45/30*

U.S. Cl. 260—28.5 D **6 Claims**

This invention relates to essentially rigid thermoplastic vinyl chloride polymer compositions which can be easily fabricated into articles such as extrusion blown bottles having exceptional clarity and surface smoothness which compositions are comprised essentially of 100 parts by weight of a vinyl chloride polymer in intimate admixture with between about

0.3 and 10 parts by weight of a chlorinated olefin wax having a molecular weight of from about 1,500 to 5,500 and which contain between about 20 and 50 weight percent of chemically combined chlorine.

3,682,925

(−)-DI-O-ISOPROPYLIDENE-2-KETO-L-GULONATES

Charles William Den Hollander, Midland Park; Willy Leimgruber, Montclair, and Ernest Mohacsi, Nutley, all of N.J., assignors to Hoffman-La Roche Inc., Nutley, N.J.

Filed Jan. 30, 1969, Ser. No. 795,333
Int. Cl. C07d *35/28, 43/28*
U.S. Cl. 260—285 10 Claims

Racemic modifications of optically active amines are treated with (−)-di-O-isopropylidene-2-keto-L-gulonic -keto-L-gulonic acid to form diastereomeric salts. The so-formed diastereomeric salts are separated and chemically decomposed to give the desired enantiomers of the amine. The resolving agent, (−)-di-O-isopropylidene-2-keto-L-gulonic acid, is recovered by precipitation from aqueous solution.

3,682,926

TETRAHYDROISO QUINOLINECARBOXAMIDES

Archer Sydney, 52 Wisconsin Ave., and John W. Schulenberg, 494 Haskell Place, both of Bethlehem, N.Y.

Division of Ser. No. 26,766, April 8, 1970, which is a division of Ser. No. 826,681, May 21, 1969, Pat. No. 3,557,120, which is a continuation-in-part of Ser. No. 569,021, Aug. 1, 1966, abandoned. This application April 19, 1971, Ser. No. 135,401
Int. Cl. C07d *35/38*
U.S. Cl. 260—287 6 Claims

N-[Phenyl$(CH_2)_m$]-2-(R)-1,2,3,4-tetrahydro-6,7-dimethoxy-1-isoquinolinecarboxamides, wherein *m* is 0, 1 or 2 and R is hydrogen, lower-alkyl or α-halo lower-alkanoyl, are intermediates for the preparation of 1,2,3,5,6,10b-hexahydro-8,9-dimethoxyimidazo[5,1-a]isoquinolines and 1,3,4,6,7,11b-hexahydro-9,10-dimethoxy-2H-pyrazino[2,1-a]isoquinolines, which possess sedative, tranquilizing and related pharmacodynamic effects.

3,682,927

5,7-BICHLORO-8-HYDROXY-2-ACETYLAMINO QUINOLINE

Massimo Carissimi, Piazzale Maciachini 16, and Franco Ravenna, Via Vincenzo Monti, 57/A, both of Milan, Italy

Filed June 12, 1969, Ser. No. 832,590
Claims priority, application Italy, June 15, 1968, 17755 A/68
Int. Cl. C07d *33/56*
U.S. Cl. 260—287 R 1 Claim

An extensive series of quinoline derivatives is disclosed, more particularly several 5,7-bichloro-8-hydroxy-quinolines carrying various substituents in the 2-position. The most interesting substituents are the aldehyde grouping, the amino grouping, the alkylaminic groupings, the piperidino, morpholino and piperazino groupings as such and variously substituted, the halogenacetic groupings, the acylaminic groupings and the halogenalkylic grouping, and also the alcoholic radicals. These compounds have proven to be vary effective antiseptics and fungicides.

3,682,928

PRODUCTION OF 2,4-DIHYDROXYQUINOLINE

Hans-Juergen Sturm, Gruenstadt, and Helmut Goerth, Ludwigshafen, both of Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen/Rhine, Germany

Filed May 19, 1969, Ser. No. 825,956
Claims priority, application Germany, May 22, 1968, P 17 70 480.2
Int. Cl. C07d *33/38*
U.S. Cl. 260—283 SY 3 Claims

Production of 2,4-dihydroxyquinoline starting from N-acetoacetylanthranilic acid esters.

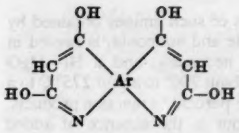
3,682,929

AROMATIC BIS-(2,4-DIHYDROXYPYRIDINE) COMPOUNDS

Erhard Siggel, Seckmauern; Hilde Kersten, Mechenhard, and Gerhard Meyer, Obernburg, all of Germany, assignors to Glanzstoff AG, Wuppertal, Germany

Filed Jan. 3, 1969, Ser. No. 788,932
Claims priority, application Germany, Jan. 8, 1968, P 16 95 107.8
Int. Cl. C07d *33/42*
U.S. Cl. 260—288 R 4 Claims

A condensed aromatic bis-(2,4-dihydroxypyridine) of the formula



(I)

wherein Ar represents a tetravalent aromatic radical such as phenylene, diphenylene, naphthylene, diphenyl ether, diphenyl methane and the like, and a process for producing these compounds by reacting an aryl diamidomalonic acid dialkyl ester with polyphosphoric acid at an elevated temperature and subsequently precipitating the reaction product.

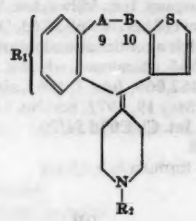
3,682,930

4(1-ALKYL-4-PIPERIDYLIDINE)-4H-BENZO *b*] CYCLOHEPTA [1,2–6]

Jean-Pierre Bourquin, 4165 Magden, Magden Ag; Gustav Schwarb, 9 Felsenweg, 4123 Allschwil, and Erwin Waldvogel, 39 Gartenstrasse, 4147 Aesch, all of Switzerland

Filed March 3, 1971, Ser. No. 120,738
Claims priority, application Switzerland, March 11, 1970, 3598/70; July 31, 1970, 11593/70
Int. Cl. C07d *29/36*
U.S. Cl. 260—293.57 20 Claims

The present invention concerns novel compounds of the formula,



wherein R_1 is hydrogen, halogen, or alkoxy of one to four carbon atoms,
R_2 is alkyl of one to four carbon atoms, and
—A—B— is —CO—CH_2—CO— or —CO—CH_2—, and pharmaceutically acceptable acid addition salts thereof.
The compounds are histaminolytics. Compounds wherein —A—B—is —CO—CH_2— are antaminics, i.e. aside from

histaminolytic properties, they possess serotonin — antagonistic and anticholinergic properties.

3,682,931

Patent Not Issued For This Number

3,682,932

2-CHLORO-6-HYDROXYNICOTINIC ACID

Alden Gamaliel Beaman, North Caldwell, and O. Neal Miller, Montclair, both of N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

Filed Nov. 23, 1970, Ser. No. 92,295
Int. Cl. C07d *31/36*
U.S. Cl. 260—295.5 R 2 Claims

2-Chloro-6-hydroxynicotinic acid, useful as an agent for inhibiting the synthesis of lipids and, consequently, reducing the weight of accumulated fat in warm-blooded animals, is described.

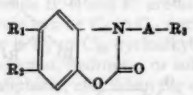
3,682,933

DERIVATIVES OF BENZOXAZOLINE-2-ONE

Kurt Engel, Basel, Switzerland, assignor to Robapharm AG, Basel, Switzerland

Filed May 27, 1969, Ser. No. 828,390
Claims priority, application Switzerland, May 31, 1968, 8143/68
Int. Cl. C07d *31/34*
U.S. Cl. 260—295 F 4 Claims

Novel compounds of the formula



wherein R_1 and R_2 represent hydrogen, halogen, nitro or alkyl, R_3 represents an alkyl substituted heterocyclic amine and A represents a saturated alkylene radical, excepting compounds where A indicates ethylene and R_3 pyridine, useful as analgesics, anti-pyretics and antiphlogistics.

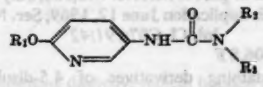
3,682,934

CERTAIN 3-(2-LOWER-ALKOXY-5-PYRIDYL)-UREAS

Henry Martin, Gellerstrasse 24, Basel, Switzerland, and Georg Pissiotas, Breslauerstrasse 8, Loerrach, Germany

Filed April 10, 1970, Ser. No. 27,455
Claims priority, application Switzerland, April 18, 1969, 5899/69
Int. Cl. C07d *31/40*
U.S. Cl. 260—295.5 D 4 Claims

Pyridylureas of the general formula



in which R_1, R_2 and R_3 have the meanings given below, their manufacture and pesticidal preparations containing them are disclosed.

3,682,935

COMPLEX NITROGEN-CONTAINING AROMATIC BORATES AS STABILIZERS FOR ORGANIC COMPOSITIONS

Derek A. Law, Pitman, N.J., assignor to Mobil Oil Corporation

Division of Ser. No. 602,504, Dec. 19, 1966, Pat. No. 3,442,807. This application Nov. 25, 1968, Ser. No. 798,527
Int. Cl. C07d *31/40*
U.S. Cl. 260—296 B 10 Claims

Boron and nitrogen compounds are provided that are useful as antioxidants for organic fluids. They are made by reacting salicylaldimines with a product of reaction between a catechol and a boric acid.

3,682,936

CERTAIN 6-(TRIFLUOROMETHYL)-PYRIDINOLS

Florence E. Tarbe, Clayton, Calif., assignor to The Dow Chemical Company, Midland, Mich.

Division of Ser. No. 807,980, March 17, 1969, Pat. No. 3,609,158. This application Oct. 2, 1970, Ser. No. 77,747
Int. Cl. C07d *31/28*
U.S. Cl. 260—297 R 5 Claims

Disclosed as novel compounds are (trifluoromethyl)pyridine derivatives which are substituted by a hydroxy, mercapto, alkoxy, loweralkenoxy, aryloxy, alkylthio, arylthio, alkylsulfonyl, arylsufonyl, amino, hydrazino or oxyloweralkanoic acid or acid derivative group and optionally by chlorine and/or fluorine. Any remaining positions on the pyridine ring are taken up by hydrogen. The compounds have utility as herbicides and as active constituents of various miticidal, anthelmintic, fungicidal and bacteriocidal compositions.

3,682,937

Patent Not Issued For This Number

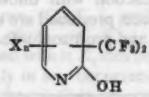
3,682,938

BIS(TRIFLUORO METHYL)-2-PYRIDINOLS

Lillian H. Troxel, Antioch, Calif., and Howard Johnston, Walnut Creek, Calif. assignors to The Dow Chemical Company, Midland, Mich.

Filed Dec. 18, 1970, Ser. No. 99,667
Int. Cl. C07d *31/28*
U.S. Cl. 260—297 R 6 Claims

This invention provides bis(trifluoromethyl)-2--pyridinols having the formula:



wherein

each X independently represents bromo, chloro or iodo; and

n represents an integer of from 0 to 2, both inclusive.

The novel compounds are active as herbicides and fungicides and are useful as intermediates in the production of bis(trifluoromethyl)pyridyl phosphates which compounds are useful pesticidal agents.

3,682,939

PREPARATION OF QUATERNARY POLYVINYL PYRIDINE POLYMERS IN WATER

William E. Webster, "Menai," Station Road, Gnosall, Stafford, England

Filed June 30, 1969, Ser. No. 837,868
Claims priority, application Great Britain, July 18, 1968, 34,285/68
Int. Cl. C07d 31/48
U.S. Cl. 260—294.8 R 6 Claims

A process in which a quaternary vinyl pyridine salt may be produced and then polymerized directly without the need for any isolation stage is disclosed. The process involves the replacement of the conventional non-aqueous solvent for the reaction by water; the vinyl pyridine and water are mixed, a quaternizing agent is added to the mixture and the mixture heated to form a solution of the quaternary vinyl pyridine salt. The solution so produced is then directly amenable to polymerization without the necessity for isolation and purification of the salt.

3,682,940

Patent Not Issued For This Number

3,682,941

PRODUCTION OF 1,2-BENZOISOTHIAZOLES

Friedrich Becke, Heidelberg, and Helmuth Hagen, Ludwigshafen/Rhine, both of Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen/Rhine, Germany

Continuation of Ser. No. 712,928, March 14, 1968, abandoned. This application Oct. 15, 1970, Ser. No. 81,175
Claims priority, application Germany, March 18, 1967, P 16 70 196.5
Int. Cl. C07d 91/12
U.S. Cl. 260—304 6 Claims

Production of 1,2-benzoisothiazoles by reacting dihalomethylaryl compounds with ammonia and elementary sulfur. The products are valuable starting materials for the production of dyes, rubber auxiliaries and oxidation inhibitors.

3,682,942

PREPARATION OF 2-(2-AMINO-1,3,4-THIADIAZOL-5-YL)-1-SUBSTITUTED-5-NITROIMIDAZOLES

Christos George Papaloannou, 7 Kingsbridge Road, Somerset, N.J.

Continuation-in-part of Ser. No. 864,873, Oct. 8, 1969, abandoned. This application March 19, 1970, Ser. No. 21,198
Int. Cl. C07d 91/62
U.S. Cl. 260—306.8 D 11 Claims

Methods of preparing 2-(2-amino-1,3,4-thiadiazol-5-yl)-1-substituted-5-nitroimidazoles from 1-substituted-2-cyano-5-nitroimidazoles by reaction with thiosemicarbazide and a strong acid. The products produced are useful for the control of bacterial, parasitic and protozoal infections in poultry and animals.

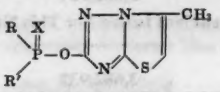
3,682,943

ALKYL ESTERS OF O-THIAZOLOTRIAZOLYL PHOSPHORIC AND PHOSPHONIC ACIDS AND AMIDES, AND THIONO COUNTERPARTS

Hellmut Hoffmann, Wuppertal-Elberfeld, and Ingeborg Hammann, Cologne, both of Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

Filed Aug. 12, 1970, Ser. No. 63,271
Int. Cl. C07d 99/06
U.S. Cl. 260—306.7 9 Claims

O,O-dialkyl or -aryl-O-[5-methyl-thiazolo-(3,2-b)-triazol-2-y/]-phosphoric acid esters and thionophosphoric acid esters as well as their phosphonic and phosphinic acid counterparts and amido esters having the formula



wherein R and R′ are alkyl, alkoxy, alkylamino or phenyl, which possesss arthropodicidal, e.g., insecticidal and acaricidal, properties, and process for their preparation.

3,682,944

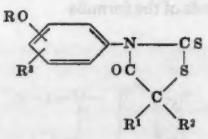
CERTAIN 3-METHYLENE DIAXYPHENYL-RHODANINES

Joseph P. Brown, Bryn Castell, Geufron, Llangollen, Denbighshire, Wales

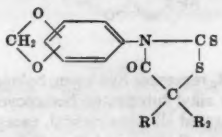
Continuation-in-part of Ser. No. 586,053, Oct. 12, 1966, abandoned. This application Nov. 7, 1969, Ser. No. 874,946
Claims priority, application Great Britain, Oct. 14, 1965, 43,612/69
Int. Cl. C07d 99/10
U.S. Cl. 260—306.7 2 Claims

Insecticidal rhodanine derivatives having a formula selected from the group consisting of

(a)



and (b)



wherein R is alkyl of at least two carbon atoms and not more than eight carbon atoms, R^1 is alkyl of not more than eight carbon atoms, R^2 is selected from the group consisting of hydrogen and alkyl of not more than eight carbon atoms, and R^3 is selected from the group consisting of hydrogen, chlorine and bromine.

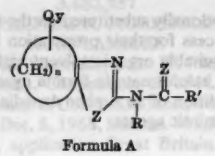
3,682,945

CERTAIN 2-ACYLAMINO-4,5,6,7-TETRAHYDROBENZOTHIAZOLES

John E. Engelhart, Westfield, N.J., assignor to Esso Research and Engineering Company

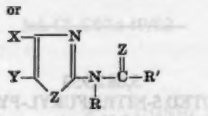
Continuation-in-part of Ser. No. 742,526, July 5, 1968, abandoned. This application June 12, 1969, Ser. No. 832,809
Int. Cl. C07d 91/42
U.S. Cl. 260—306.8 F 5 Claims

Nitrogen-containing derivatives of 4,5-disubstituted 2-amino thiazoles and oxazoles, particularly the amides, ureas, thioureas, carbamates, thiocarbamates, dithiocarbamtaes, biurets, thiobiurets, dithiobiurets, semicarbazides, thiosemicarbazides, and imides, etc. of 4,5-disubstituted 2-amino thiazoles and oxazoles of the general formulas:



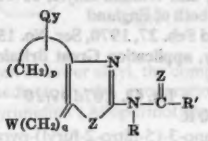
Formula A

or



Formula B

or



Formula C

are useful as pesticides, especially as post-emergence herbicides. In all of these formulas, Z is independently O or S. In Formula A, *n* is a positive integer of from 2–30; *y* ranges from 0 to complete substitution of the hydrogen atoms present in the cycloalkyl ring, more preferably from 0 to 6 as when *n* is 4; and Q, R, and R′ can be hydrogen, or a wide variety of unsubstituted and substituted hydrocarbyl moieties. R′ can also be hydrazino; C_1 to C_{20} mono-, di-, or trialkylhydrazino; or substituted forms of these. Q can also be one or more of a number of groups such as, e.g., cyano, halogen, nitro, carboxy, carbalkoxy, perfluoroalkyl, thiocyano, alkyl sulfoxide, alkyl sulfone, hydroxy, thiol, sulfonic acid, sulfonamide, etc.

Concerning Formula B: R and R′ are as in Formula A and either X or Y therein can be C_3 to C_{30} cycloalkyl except that when one of them is C_3 to C_{30} cycloalkyl the other is, e.g., halogen, nitro, thiocyano, hydrogen, or substituted or unsubstituted C_1 to C_{15} aliphatic, etc. When the compounds of Formula B are used as herbicides, X and Y therein can either or both be a wide variety of substituted or unsubstituted hydrocarbyl moieties.

In Formula C, *p* and *q* are positive integers of from 1 to 12; W is a hetero atom such as O, $S(O)_n$ where *n* equals 0 to 2 or N–Q, Q, y R, Z and R′ are as in Formula A.

3,682,946
NEW BIS-NAPHTHOXAZOLYL-DERIVATIVES

Peter Liechti, Binningen, Germany, assignor to Ciba-Geigy

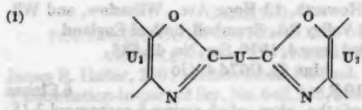
Filed March 2, 1970, Ser. No. 15,912

Claims priority, application Switzerland, March 6, 1969, 3406/69

Int. Cl. C07d *85/48*

U.S. Cl. 260—307 D **4 Claims**

The present invention relates to new azole derivatives of the naphthoxazole type which in the most general case correspond to the formula

(I) 

wherein U denotes a diphenyl radical bonded in the 4,4′-position to the oxazole rings and U_1 and U_2 denote naphthalene radicals fused to the oxazole rings, and wherein up to four positions capable of substitution in U; U_1 and U_2 can be substituted with optionally substituted alkyl groups, halogen or optionally functionally modified sulphonic acid groups and up to 2 positions capable of substitution can be substituted with optionally substituted phenyl groups, phenylalkyl groups, $-SO_3$-phenyl, nitrile or optionally functionally modified carboxyl groups. The naphthoxazole compounds are useful as optical brightening agents.

3,682,947
CERTAIN 2-(4-SUBSTITUTED CYCLOHEXYLAMINO)-2-OXAZOLINES

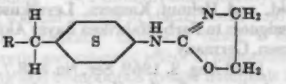
Richard N. Knowles, Hockessin, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 574,496, Aug. 18, 1966. This application April 20, 1967, Ser. No. 635,303

Int. Cl. C07d *85/36*

U.S. Cl. 260—307 F **9 Claims**

2-(4-Substituted cyclohexylamino)-2-oxazolines of the formula:



wherein

R is alkyl, cycloalkyl, cycloalkylalkyl, bicycloalkyl or tricycloalkyl.

Typical is 2-(cis-4-cyclohexylmethylcyclohexylamino)-2-oxazoline, useful as an animal repellent.

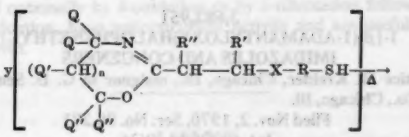
3,682,948
SULFUR-CONTAINING 2-OXAZOLINE AND OXAZINE MONOMERS AND THEIR POLYMERS

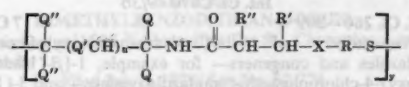
Donald A. Tomalia, 1005 E. Park Drive, and Yancey J. Dickert, 611 Chatham Drive, both of Midland, Mich.

Filed June 16, 1969, Ser. No. 834,612

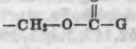
Int. Cl. C07d *85/36*

U.S. Cl. 260—307 F **8 Claims**





Wherein R is alkylene (C_2–C_{20}), arylene (C_6–C_{10}), alkylarylene (C_7–C_{15}), alkyl- (C_1–C_{10}) or aryl- (C_6–C_{10}) thiopolyether; or R and with it X, can be void; R′, R″, Q′ and Q″ are, independently in any occurrence, hydrogen or alkyl (C_{1-4}) or R′ can be phenyl; Q in any occurrence is independently hydrogen, methylol, or



wherein G is alkyl (C_{1-20}) or phenyl; and *n* is zero or 1, and *y* designates the molar abundance of monomer for a desired degree of polymerization; and *y* designates also that degree of polymerization: the substances polymerize without catalysis to obtain polyamides with useful resinous properties.

3,682,949

2-ARYL-5(OR 4-)NITROIMIDAZOLES

Lewis H. Sarett, RFD 2-560 Province Line Rd., Princeton, N.J.; Dale R. Hoff, 172 Hillcrest Ave., Cranford, N.J., and David W. Henry, 140 N. Castanya Way, Menlo Park, Calif.

Filed July 22, 1969, Ser. No. 848,558
Int. Cl. C07d 49/36
U.S. Cl. 260—309 21 Claims

1-Substituted-2-aryl-5-nitroimidazoles, 1-substituted-2-aryl-4-nitroimidazoles and related isoindoles and dihydroisoquinolines are prepared. The compounds are utilized as antiprotozoals, antibacterials, anthelmintics and the like. Further, the novel nitroimidazoles useful as intermediates in the preparation of the active parasiticides are prepared.

3,682,950

1-TRITYL-1,2,4-TRIAZOLES

Karl Heinz Buchel, Wuppertal-Elberfeld; Ferdinand Grewe, Burscheid, and Helmut Kaspers, Leverkusen, all of Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

Filed Aug. 8, 1969, Ser. No. 848,738
Claims priority, application Germany, Aug. 28, 1968, P 17 95 249.7
Int. Cl. C07d 55/06
U.S. Cl. 260—308 R 10 Claims

1-Trityl-1,2,4-triazoles, i.e. 1-[(optionally mono and di chloro-, fluoro-, cyano- and trifluoromethyl-substituted)-(optionally mono and di chloro-, fluoro-, cyano- and trifluoromethyl- substituted)-(optionally mono and di chloro-, fluoro-, cyano- and trifluoromethyl- substituted)-trityl]-3-(optionally chloro substituted)-5-(optionally chloro substituted)-1,2,4-triazoles, or 1-[(optionally mono and di chloro, fluoro-, cyano- and trifluoromethyl- substituted phenyl)-(optionally mono and di chloro-, fluoro-, cyano- and trifluoromethyl- substituted phenyl)-(optionally mono and di chloro-, fluoro-, cyano- and trifluoromethyl-substituted phenyl)-methyl]-3-(optionally chloro-substituted)-5-(optionally chloro substituted)-1,2,4-triazoles, which possess fungicidal properties and which may be produced by conventional methods.

3,682,951

1-[β-(1-ADAMANTYLOXY)HALOPHENETHYL] IMIDAZOLES AND CONGENERS

Eunice M. Kreider, Chicago, Ill., assignor to G. D. Searle & Co., Chicago, Ill.

Filed Nov. 2, 1970, Ser. No. 86,271
Int. Cl. C07d 49/36
U.S. Cl. 260—309 7 Claims

Preparation of 1-[(3-(1-adamantyloxy)phenethyl]imidazoles and congeners— for example, 1-[β-(1-adamantyloxy)-4-chlorophenethyl]imidazole oxalate— and 3-(1-adamantyl)-1-[(β-hydroxyl)halophenethyl]imidazolium bromide by-products, together with biological properties thereof including antibacterial, antiprotozoal, anthelmintic, antifungal, and antialgal activities, are disclosed.

3,682,952

5(6)-N-BUTYL-2-CARBOMETHOXY-BENZIMIDAZOLE

Philip Paul Actor, Phoenixville, and Joseph Frank Pagano, Paoli, both of Pa., assignors to Smith Kline & French Laboratories, Philadelphia, Pa.

Division of Ser. No. 562,117, July 1, 1966, Pat. No. 3,574,845, which is a continuation-in-part of Ser. Nos. 387,524, Aug. 4, 1964, abandoned, and Ser. No. 516,120, Dec. 23, 1965, abandoned. This application May 19, 1970, Ser. No. 48,669
Int. Cl. C07d 49/38
U.S. Cl. 260—309.2 1 Claim

Anthelmintic compositions comprising esters of benzimidazolyl carbamic acids, and their trio analogs, both of which may be optionally substituted on the benzene ring, are disclosed. A process for their preparation involves reacting cyanamide in a suitable organic solvent with the appropriate alkyl substituted haloformate to form a cyanocarbamate, followed by the addition of an o-phenylenediamine to yield the described anthelmintic agents.

3,682,953

SUBSTITUTED 5-NITROFURYL-PYRAZOLES

Graham Arton Howarth, 13 Hope Avenue, Handforth, Wilmslow, Cheshire, and William Hoyle, 61 Valley Road, Bramhall, Cheshire, both of England

Filed Feb. 27, 1970, Ser. No. 15,209
Claims priority, application Great Britain, March 1, 1969, 11,064/69
Int. Cl. C07d 49/20
U.S. Cl. 260—310 R 7 Claims

5-Amino-4-cyano-3-(5-nitro-2-furyl)-pyrazoles, substituted in 1-position of the pyrazole moiety by alkyl, hydroxyalkyl or carbalkoxy, and pharmaceutically acceptable acid addition salts thereof, have antimicrobial properties; compositions containing these compounds and methods for the treatment of microbial infections and protecting organic material against microbial attack; a typical embodiment is 5-amino-4-cyano-1-methyl-3-(5-nitro-2-furyl)-pyrazole.

3,682,954

BIS (3-PYRAZOLIDONE) COMPOUNDS

Durvasula V. Rao, Hamden, Conn.; Adnan A. R. Sayigh, North Haven, Conn., and Henri Ulrich, Northford, Conn., assignors to the Upjohn Company, Kalamazoo, Mich.

Filed Feb. 4, 1970, Ser. No. 8,712
Int. Cl. C07d 49/04
U.S. Cl. 260—310 A 6 Claims

4,4′-di-(3-oxo-1-pyrazolidino)-diphenylmethane compounds are prepared by heating the corresponding di-(N-β-hydrozypropio)-4,4′-dihydrazidodiphenylmethane compositions in an inert organic solvent and in the presence of an acid dehydration catalyst. Valuable polyureas and mixed polyurethane-polyurea products are formed by reacting a polyisocyanate with these compounds or with mixtures of the novel compounds and conventional polyols.

3,682,955

Patent Not Issued For This Number

3,682,956

SUBSTITUTED 3-(5-NITRO-2-FURYL)-PYRAZOLES

Graham Arton Howarth, 13 Hope Ave., Wilmslow, and William Hoyle, 61 Valley Rd., Bramhall, both of England

Filed June 4, 1970, Ser. No. 43,585
Int. Cl. C07d 49/36
U.S. Cl. 260—310 R 6 Claims

Compounds of the class of 5-amino-4-carbamoyl-3-(5-nitro-2-furyl)-pyrazole substituted in 1-position of the pyrazole ring by alkyl or hydroxyalkyl have anti-microbial properties; these compounds are active ingredients of pharmaceutical and feedstuff compositions; they are useful for the treatment of microbial infections and for protecting organic material against microbial attack; a typical embodiment is 5-amino-4-carbamoyl-1-methyl-3-(5-nitro-2-furyl)-pyrazole.

3,682,957

METHOD OF PREPARING MORPHOLINO CYANOACRYLAMIDES

Ronald M. Cresswell, Scarsdale; John W. Mentha, Hartsdale, and Russell Seaman, Chappaqua, all of N.Y., assignors to Burroughs Wellcome & Co. (U.S.A.) Inc., Tuckahoe, N.Y.

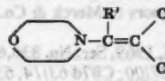
Filed Dec. 5, 1968, Ser. No. 781,590

Claims priority, application Great Britain, Feb. 2, 1968, 5,397/68

Int. Cl. C07d 49/02

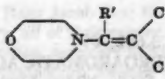
U.S. Cl. 260—310 2 Claims

A compound



where R' is hydrogen or lower alkyl, the compound being usable as an intermediate in the preparation of 4-hydroxypyrazolo[3,4-d]pyrimidine (Allopurinol) and its useful relatives.

A method of preparing



which comprises reacting $R'C(OR)_3$, morpholine and cyanoacetamide where R' is hydrogen or lower alkyl and R is lower alkyl.

3,682,958

Patent Not Issued For This Number

3,682,959

BENZOTHIEPINO[4,5-C] PYRROLES

Hans Blattner, Schuetzenrainweg 42, Switzerland, and Walter Schindler, Rudolf-Wackernagelstrasse, 4, both of Riehen/BS, Switzerland

Filed Dec. 16, 1970, Ser. No. 98,927

Claims priority, application Switzerland, Dec. 23, 1969, 19061/69; Dec. 23, 1969, 19062/69

Int. Cl. C07d 27/54, 63/18

U.S. Cl. 260—326.9 15 Claims

Compounds of the class of 2,3-dihydro-1H-thieno [2',3' :2,3][1bbenzothiepino[4,5-c]pyrrole,2,3-dihydro-1H-thieno[3',2':2,3][1]benzothiepino[4,5-c]pyrrole, and the N-allyl and N-alykl derivatives thereof are prepared from 4,5-bis-bromomethylthieno[3,2-b][1]benzothiepin or 4,5-bis-bromomethylthieno[3,2-b][1]benzothiepin and amines, these compounds and the pharmaceutically acceptable acid addition salts thereof have a depressant effect upon the central nervous system and are active ingredients of pharmaceutical compositions.

3,682,960

POLYIMIDE COMPOSITIONS AND METALLIC ARTICLES COATED THEREWITH

James R. Haller, 2501 Hudson Road, St. Paul, Minn.

Continuation-in-part of Ser. No. 648,945, June 26, 1967, Pat. No. 3,582,458. This application March 9, 1970, Ser. No. 22,725

Int. Cl. C08g 41/04, 51/44

U.S. Cl. 260—32.6 N 3 Claims

Polymer-metal laminate composites having improved adhesion between metallic and polymer laminae, the polymer consisting essentially of a mixture of a polyimide and a polyimide containing amide groups along the backbone of the polymer chain; and compositions adapted to making such laminates, containing the said polymer mixture in solution in a suitable solvent.

3,682,961

4-CHLORO-5-(2-METHYLENE-BUTRYL)-INDOLE CARBOXYLIC ACID

Janos Zergenyi, Riehen, and Ernst Habicht, Oberwil, both of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Division of Ser. No. 746,262, July 22, 1968, Pat. No. 3,580,931. This application Aug. 19, 1970, Ser. No. 65,341

Int. Cl. C07d 27/56

U.S. Cl. 260—326.13 R 1 Claim

The production of 5-(2-methylene-alkanoyl)-benzofuran-, 5-(2-methylene-alkanoyl)-indole- and 5-(2-methylene-alkanoyl)-benzo[b]thiophene-2-carboxylic acids by reaction of the corresponding 5-(2-dimethylaminomethyl-alkanoyl)-derivatives with sodium acetate in glacial acetic acid and their pharmaceutically acceptable salts with bases, a method of producing a diuretic and saluretic effect in mammals comprising administering said compounds to said mammals and pharmaceutical compositions containing said compounds are described. A typical embodiment is 5-(2-methylene-butyryl)-6-methyl-benzofuran-2-carboxylic acid.

3,682,962

1-SUBSTITUTED-1,2,3,5-TETRAHYDRO-4,1-BENZOTHIOZEPINES

William B. Dickinson, Colonie, N.Y., assignor to Sterling Drug Inc., New York, N.Y.

Filed March 17, 1970, Ser. No. 20,436

Int. Cl. A61k 27/00; C07d 93/40

U.S. Cl. 260—327 B 41 Claims

1-(Substituted)-(6,7,8 or 9)-(substituted or unsubstituted)-1,2,3,5-tetrahydro-4,1-benzothiazepines, derived from the corresponding (6,7,8 or 9)-(substituted or unsubstituted)-1,2,3,5-tetrahydro-4,1-benzothiazepines by 1-acylation, 1,1'-bisacylation, 1-carbamylation or 1-thiocarbamylation followed optionally by 4-oxidation or by 1-nitrosation followed by reduction, have anticonvulsant activity and are useful as sedatives.

3,682,963

DIMETHYLBENZODITHIAN-2-OXIDE

Kazimir Sestanj, 605 B. Havre Des Iles St., Chomedey, Laval, Canada

Filed July 6, 1970, Ser. No. 52,776

Int. Cl. A61k 27/00; C07d 73/00

U.S. Cl. 260—327 R 1 Claim

There is disclosed herein 6,7-dimethyl-2,3-benzodithian-2-oxide and an anti-fungal and cholesterol-lowering agent. A method for preparing and methods for using the compound are also disclosed.

3,682,964

SPIRO BENZOCYCLANE ACETIC ACID COMPOUNDS

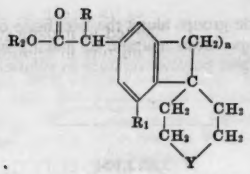
Genevieve Rousseau, Paris; Andres Allais, Les Lilas, and Andre Polttevin, Vaires-sur-Marne, all of France, assignors to Roussel Uclof, Paris, France

Filed Aug. 31, 1970, Ser. No. 68,530

Int. Cl. A61k 27/00; C07d 65/04, 7/04

U.S. Cl. 260—327 TH 14 Claims

Novel spiro benzocyclane acetic acid compounds of the formula



I

wherein R is selected from the group consisting of hydrogen and linear and branched alkyl of one to four carbon atoms, R_1 is selected from the group consisting of hydrogen, chlorine, trifluoromethyl and lower alkoxy, Y is selected from the group consisting of methylene, oxygen and sulfur, *n* is 2, 3 or 4 and R_2 is selected from the group consisting of hydrogen, substituted or unsubstituted alkyl of one to six carbon atoms and cation of non-toxic, pharmaceutically acceptable mineral and organic bases, processes for their preparation and novel intermediates. The compounds of formula I have analgesic and anti-inflammatory properties.

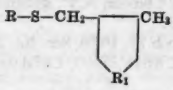
3,682,965

SULFUR-CONTAINING PYRROLIDINES

Richard A. Hickner, 3607 Sharon Road; Corwin J. Bredeweg, 5709 Leeway, and Raymond A. Plepys, 2119 Hillgrove, all of Midland, Mich.

Filed Jan. 27, 1969, Ser. No. 794,411
Int. Cl. C07d *27/04*
U.S. Cl. 260—326.84 **9 Claims**

Novel sulfur-containing pyrrolidines and tetrahydrofurans having the formula



(where R_1 is oxygen or an amino group) are produced by reacting, under free radical conditions, a diallyl ether or a diallyl amine with a mercaptan. These new compounds are useful surface active agents, plasticizers and stabilizers and, in addition, have biological activity.

3,682,966

SALICYLOYLAMINO-ANTHRAQUINONE PIGMENTS

Andre Pugin, Grenzacherweg 301, Riehen; Kurt Burdeska, Paracelsusstrasse 64, and Ernst Model, Blotzheimerstrasse 69, both of Basle, all of Switzerland

Filed Sept. 2, 1969, Ser. No. 854,770
Claims priority, application Switzerland, Sept. 13, 1968, 13770/68
Int. Cl. C07d *27/52*
U.S. Cl. 260—326 D **8 Claims**

Salicyloylamino-anthraquinones are described in which the benzene nucleus of the salicyloyl radical is substituted by an amido group.

Preferred pigments of this class are of yellow color with a greenish hue, and are distinguished by particularly good weather- and light-fastness and fastness to solvents.

3,682,967

1H-3-(SUBSTITUTED AMINOALKYLIDENE) CYCLOPENTA[β] THIANAPHTHENES

John T. Suh, Mequon, Wis., assignor to Colgate-Palmolive Company, New York, N.Y.

Continuation-in-part of Ser. No. 599,744, Dec. 7, 1966, Pat. No. 3,497,528. This application Feb. 9, 1970, Ser. No. 9,947
Int. Cl. A61k *27/00*; C07d *63/22*
U.S. Cl. 260—330.5 **6 Claims**

The compounds are 1H-3-(substituted aminoalkylidene)cylclopenta[β]thianaphthenes which are useful as central nervous stimulants of the antidepressant type and anticholinergic agents. A compound disclosed is 1H-3-(γ-dimethylaminopropylidene)cyclopentai[β]thianaphthene hydrochloride.

3,682,968

ANTI-INFLAMMATORY SALICYLIC ACID DERIVATIVES

Tsung-Ying Shen; Bruce E. Witzel, and Gordon L. Walford, all of Westfield, N.J., assignors to Merck & Co., Inc., Rahway, N.J.

Filed June 25, 1969, Ser. No. 836,622
Int. Cl. A61k *27/00*; C07d *63/14*, *63/16*
U.S. Cl. 260—332.2 A **4 Claims**

Salicylic acid derivatives and their non-toxic pharmaceutically acceptable salts, esters and amides are claimed. Also encompassed is the treatment of inflammation with said derivatives.

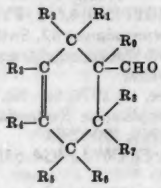
3,682,969

EPOXIDIZED HYDROAROMATIC ACETALS

Hans Batzer, Arlesheim; Erwin Nikles, Liestal; Otto Ernst, Pfeffingen, and Daniel Porret, Binningen, all of Switzerland, assignors to Ciba-Geigy AG

Division of Ser. No. 828,472, July 21, 1959, Pat. No. 3,538,115. This application May 21, 1970, Ser. No. 39,524
Int. Cl. C07d *17/00*
U.S. Cl. 260—338 **1 Claim**

Epoxidized derivatives of reaction products of aldehydes of the general formula I:



with dialcohols having at least one epoxidizable C = C double bond. The products are useful for preparing epoxy resins.

3,682,970

PRODUCTION OF UNSATURATED CARBOCYCLIC KETONES

Clive A. Henrick, Palo Alto; John A. Edwards, Los Altos, and John H. Fried, Palo Alto, all of Calif., assignors to Syntex Corporation, Panama, Panama

Filed March 27, 1969, Ser. No. 811,237
Int. Cl. C07d *73/00*, *13/04*, *7/04*
U.S. Cl. 260—327 M **7 Claims**

Preparation of α,β-unsaturated carbocyclic ketones by reacting a methylene or methine phosphonium ylid with a δ-keto carboxylic acid ester, anhydride or acyl halide. The reaction is useful for producing intermediates for synthesis of known steroids having estrogenic, progestational, or anabolic activity, for example.

3,682,971

METAL COMPLEXES

Keith Joseph Bent, and John Michael Cox, both of Bracknell, England, assignors to Imperial Chemical Industries Limited, London, England

Filed Oct. 17, 1969, Ser. No. 867,408
Claims priority, application Great Britain, Oct. 29, 1968, 51273/68
Int. Cl. C07d 7/20
U.S. Cl. 260—343.2 R 3 Claims

Metal complexes and salts of the compound 2,3,3a,9b-tetrahydro-6-hydroxy-7,8-dimethoxy-2-n-propyl-5H-furo [3,2-c] [2]possess anti-fungal properties.

3,682,972

Patent Not Issued For This Number

3,682,973

BENZODIOXOLE COMPOUNDS OF THERAPEUTIC INTEREST

Edgar Eriksoo; Hans Jacob Fex; Knut Bertil Hogberg; Henri Rene Mollberg, all of Halsingborg, and Oskar Adolf Rohte, Raa, all of Sweden, assignors to Aktiebolaget Leo (AB Leo), Halsovagen, Halsingborg, Sweden

Filed June 24, 1969, Ser. No. 836,142
Int. Cl. C07d 13/10
U.S. Cl. 260—340.5 45 Claims

This invention relates to benzodioxole compounds having valuable pharmacological properties and to the preparation thereof. The invention is also concerned with pharmaceutical compositions containing the said compounds, and method of treatment therewith.

3,682,974

Patent Not Issued For This Number

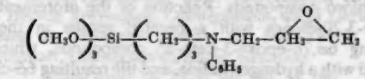
3,682,975

SUBSTITUTED SILYL GLYCIDYLAMINES

Giuliana C. Tesoro, Dobbs Ferry, N.Y., assignor to J. P. Stevens & Co., Inc., New York, N.Y.

Filed May 13, 1968, Ser. No. 728,784
Int. Cl. C07f 7/18
U.S. Cl. 260—348 SC 3 Claims

This disclosure is directed to novel compounds which are silyl glycidylamines, to polymers of such compounds, and to glass fibers and laminates in which said compounds are used as sizing or bonding agents. The compounds of this disclosure are characterized by substituted silyl groups, preferably having at least one oxygen atom bonded thereto, wherein the silicon atom is bonded through a carbon atom to a nitrogen atom which in turn is bonded to an epoxy group. An example of these new compounds is N-(2,3-epoxypropyl)-N[3-(trimethoxysilyl)propyl]aniline:



A method for their preparation is to react a silyl amine with an epihalohydrin, and to dehydrohalogenate the intermediate to form the compounds of this disclosure. These compounds may be applied as a size to glass fibers, and used as bonding agents for glass-resin laminates, particularly where the resin is an epoxy resin.

3,682,976

PHENYL BENZOFURAN ACETIC ACID COMPOUNDS

James S. Kaltenbronn, Ann Arbor, and Franklin W. Short, Saline, both of Mich., assignors to Parke, Davis & Company, Detroit, Mich.

Filed Feb. 16, 1970, Ser. No. 11,856
Int. Cl. C07d 5/42
U.S. Cl. 260—346.2 R 6 Claims

3-Phenyl-7-benzofuranacetic acids, 4-phenyl-7-benzofuranacetic acids, 7-phenyl-4-benzofuranacetic acids, 2-methyl-7-phenyl-4-benzofuranacetic acids, and 7-phenyl-3-benzofuranacetic acids, optionally substituted in the phenyl group by fluorine or chlorine and on the α-carbon group by lower alkyl; carboxylate salts thereof; and their production by hydrolysis of a correspondingly substituted carboxylic acid precursor or by decarboxylation by heating of a malonic acid precursor. The compounds of the invention are useful as anti-inflammatory agents.

3,682,977

Patent Not Issued For This Number

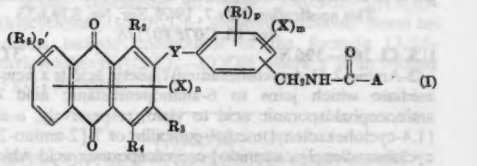
3,682,978

ANTHRAQUINONE DYESTUFFS

Heinz Machatzke, Union, N.J., and Josef Singer, Leverkusen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

Filed June 4, 1969, Ser. No. 830,524
Claims priority, application Germany, June 15, 1968, P 17 69 612.7
Int. Cl. C09b 1/52, 1/56
U.S. Cl. 260—372 10 Claims

The invention relates to new sulphonic acid group-containing anthraquinone dyestuffs of the general formula



(I)

in which

A stands for an optionally substituted alkyl, cycloalkyl, alkylamine, cycloalkylamine, alkyloxy or cycloalkyloxy radical; for an optionally substituted, preferably sulphonated, arylamine or aryloxy radical; for an optionally substituted aralkyl, aralkylamine or aralkyloxy radical preferably sulphonated in the aromatic part; or for an amino group,

Y represents a direct linkage or a bridge member,

R_1 to R_3 denote, independently of one another, hydrogen, Halogen (Cl, Br, F), $-NO_2$, $-NH_2$, NH—alkyl, —NH-aryl, —NH—acyl, —O—alkyl, O—aryl, —OH, —S—alkyl, —S—aryl, $-SO_2NH$—alkyl, $-SO_2N(alkyl)_2$, $-SO_2NH$-aryl, $-SO_2$—alkyl, $-SO_2$—aryl, —aryl.

R_1 may also stand for a lower alkyl radical, the radicals

X denote sulphonic acid groups, p and p' represent the number 1, 2 or 3, m denotes the number 0, 1 or 2, and n represents the number 0, 1 or 2, the sum total of m and n, in addition to the sulphonic acid groups which may be contained in the radical A, being at least 1.

3,682,979

DYE NITRATES

Arnold Tartter, Lambsheim; Guenter Riedel, Mannheim, and Eberhard Nold, Ludwigshafen, all of Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen/Rhine, Germany

Filed May 18, 1970, Ser. No. 38,515

Claims priority, application Germany, May 21, 1969, P 19 25 811.8

Int. Cl. C09b *11/12*

U.S. Cl. 260—393 1 Claim

Nitrates of triarylmethane dyes useful in printing inks, pastes for ball point pens, inks, copying papers, transparent coatings, etc.

3,682,980

AMINOBENZOQUINONES AND AMINONAPHTHOQUINONES AS ADDITIVES FOR IMPARTING OXIDATIVE STABILITY TO ORGANIC COMPOSITIONS

Milton Braid, Westmont, and Derek A. Law, Pitman, both of N.J., assignors to Mobil Oil Corporation

Continuation-in-part of Ser. No. 590,482, Oct. 31, 1966, Pat. No. 3,445,391. This application April 2, 1969, Ser. No. 812,893

Int. Cl. C07c *97/08*

U.S. Cl. 260—396 R 14 Claims

The invention provides new aminobenzoquinones and aminonaphthoquinones, and the substituted members thereof, which are useful as antioxidant additives to organic compounds, especially lubricants.

3,682,981

2-AMINO-2-(1,4-CYCLOHEXADIENYL) ACETIC ACID

Frank Lee Weisenborn, Somerset; Joseph Edward Dolfini, North Brunswick; Georges Gustav Bach, Hightstown, and Jack Bernstein, New Brunswick, all of N.J., assignors to E. R. Squibb & Sons, Inc., New York, N.Y.

Division of Ser. No. 741,852, July 2, 1968, Pat. No. 3,485,819. This application July 7, 1969, Ser. No. 839,633

Int. Cl. C07c *101/28*

U.S. Cl. 260—396 N 3 Claims

2-Amino-2-(1,4-cyclohexadienyl)acetic acid is a new intermediate which joins to 6-aminopenicillanic acid or 7-aminocephalosporanic acid to yield, respectively, α-amino-(1,4-cyclohexadienyl)methyl-penicillin or 7-[2-amino-2-(1,4-cyclohexadienyl)acetamido]-cepnalosporanic acid which are antibacterial agents.

3,682,982

Patent Not Issued For This Number

3,682,983

PREPARATION OF Δ^{16}-17 ETHINYL STEROIDS

Klaus Prezewowsky, Aarauer Strasse 10, 1 Berlin 45, and Rudolf Wiechert, Endestrasse 38, 1 Berlin 39, both of Germany

Continuation-in-part of Ser. No. 665,548, Aug. 31, 1967, abandoned. This application Nov. 12, 1969, Ser. No. 876,061

Int. Cl. C07c *169/22*

U.S. Cl. 260—397.3 10 Claims

This invention relates to a method of preparing Δ^{16}-17-ethinyl steroids from 17-hydroxy-17-ethinyl steroids by elimination of water by means of phosphorus oxychloride in the presence of an organic base, characterized in that 2,4-lutidine is used as the organic base.

3,682,984

17α-(2,3-METHYLENE-PROP-1-EN-1 YL)-STEROIDS AND 17α-(2,3-MONOHALOMETHYLENE AND 2,3-DIHALOMETHYLENE) DERIVATIVES THEREOF

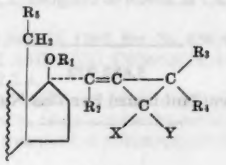
Pierre Crabbe, Mexico, and Ulrich Werner Graf, Cuernavaca, both of Mexico, assignors to Syntex Corporation, Panama, Panama

Filed Jan. 19, 1970, Ser. No. 4,116

Int. Cl. C07c *169/08, 169/22*

U.S. Cl. 260—397.4 11 Claims

A physiologically active steroidal compound of the partial formula



wherein R_1 is H, carboxylic acyl groups of less than 12 carbon atoms, tetrahydropyran-2-yl, tetrahydrofuran-2-yl, or 4-methoxy tetrahydropyran-4-yl, R_2, R_3, and R_4 are H, or a lower alkyl, preferably methyl, R_5 is H, a lower alkyl such as methyl, ethyl or propyl, and X and Y are independently H, F, Br or Cl.

3,682,985

17α-PROPADIENYL-SUBSTITUTED STEROIDS

Imre Bacso, 320 South Street, Morristown, and Robert V. Coombs, 412 Morris Avenue, Summit, both of N.J.

Filed Sept. 4, 1970, Ser. No. 69,929

Int. Cl. C07c *169/22*

U.S. Cl. 260—397.4 6 Claims

13-alkyl-17-beta-hydroxy-17-alpha-propadienylgona-4,9-dien-3-ones are useful as pharmaceuticals and are obtainable by a multi-step procedure, which involves carrying out a Mannich-type reaction to convert a 17-alpha-ethynyl-substituted 4,9-dien-3,17-beta diol steroid to its 17-alpha-dialkylaminopropynyl-substituted analog, which is then converted to a quaternary ammonium salt, which is then reduced using a complex metal hydride to obtain the corresponding 17-alpha-propadienyl-diol product, which is then oxidized at the 3-position to the corresponding 17-beta-hydroxy 3-keto-final product.

3,682,986

17α-ALKANOYLOXY-11β-METHYL-19-NORPREGNA-4,6-DIENE-3,20-DIONES AND THE 6α-CHLORO-19-NORPREGN-4-ENE-3,20-DIONES CORRESPONDING

John S. Baran, 9320 Marmora, Morton Grove, and Ivar Laos, 8419 East Prairie Road, Skokie, both of Ill.

Filed June 11, 1970, Ser. No. 45,592

Int. Cl. C07c *169/34*

U.S. Cl. 260—397.45 7 Claims

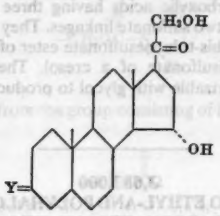
17α-Alkanoyloxy-11β-methyl-19-norpregn-4-ene-3,20-diones are converted to the corresponding enol ethers by standard methods and the latter derivatives are, alternatively, oxidized to yield the corresponding 4,6-diene-3,20-diones or are contacted first with an N-chloroamide or N-chloroimide, e.g., N-chlorosuccinimide, then with a strong mineral acid to yield the 6α-chloro compounds. Reaction of the aforementioned 4,6-diene-3,20-diones with a peracid results in the corresponding 6α,7α-epoxy-3-keto-Δ^4 compounds, which are contacted with a hydrogen halide, and the resulting 6β-chloro-7α-hydroxy compounds are dehydrated by conversion first to the 7-methanesulfonate followed by heating with a suitable base to provide the desired 6-chloro-3-keto-$\Delta^{4,6}$ derivatives. The compounds of this invention are unusually potent progestational and estrogen-inhibitory agents.

3,682,987
PROCESS FOR THE MANUFACTURE OF Δ 14-20-KETO-21-DIALKOXY STEROIDS

Kurt Radscheit; Ulrich Stache; Werner Fritsch, and Werner Haede, all of c/o Farbwerke Hoechst AG, Frankfurt/Main, Germany

Filed April 14, 1969, Ser. No. 816,066
Claims priority, application Germany, April 18, 1968, P 17 68 226.7
Int. Cl. C07c *169/32*
U.S. Cl. 260—397.47 2 Claims

Δ^{14}-20-keto-21-dialkoxy steroids are prepared by oxidizing 20-keto-15α,21-dihydroxy steroids of the general formula



in which Y is an oxo group which may be ketalized,

group which may be etherified or esterified, a Δ^3—, Δ^2—, or $\Delta^{3,5}$—enol ether group or a Δ^3—, Δ^2—, or $\Delta^{3,5}$—enamino group, which groups may have a double bond in the 4-position, and

is a lower acyclic or cyclic acetal grouping, acetalizing the 15α-hydroxy-20-keto-21-oxo steroids obtained, reacting the 15α-hydroxy-20-keto-21-dialkoxy steroids thus obtained with sulfonic acid halides and treating the 15-sulfonic acid esters thus obtained with agents splitting off acids. The products are valuable intermediates for the manufacture of medicaments.

3,682,988
PHOSPHONATE COMPOSITIONS

Morton Lewis, 668 Edgewood Ave., Elmhurst, Ill.

Filed July 30, 1969, Ser. No. 846,247
Int. Cl. C07f *9/02*; A23j *7/00*
U.S. Cl. 260—403 16 Claims

Phosphonated polyoxyalkylene ethers are produced by reacting a halogen-containing polyoxyalkylene ether with an aliphatic or aromatic phosphite. The resulting compositions are used to prepare flame resistant, non-rigid polyurethane foams.

3,682,989
PREPARATION OF GRANULAR VITAMIN A ESTERS

Werner Reif, Frankenthal; Axel Nuerrenbach, Gruenstadt, and Herwig Freyschlag, Ludwigshafen, all of Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen/Rhine, Germany

Filed April 24, 1970, Ser. No. 31,790
Int. Cl. C07c *175/00*
U.S. Cl. 260—410 10 Claims

Process for the preparation of granular vitamin A esters by contacting the molten vitamin A esters with a cold organic liquid kept in motion.

3,682,990
DEMULSIFIER FOR WATER-PETROLEUM EMULSIONS

William Schoen, and Leo Landau, both of Houston, Tex., assignors to Texaco Inc., New York, N.Y.

Division of Ser. No. 605,233, Dec. 28, 1966, Pat. No. 3,553,149. This application April 15, 1970, Ser. No. 33,145
Int. Cl. C07c *69/28*; B01d *17/04*
U.S. Cl. 260—410.5 4 Claims

A demulsifier for resolving water-petroleum emulsions is prepared by reacting together a paraffin wax oxidate and an alkyl phenol-ethylene oxide reaction product. One demulsifier is made from a paraffin wax oxidate having a neutralization number between 215 and 240 which is prepared from a paraffin wax having a melting point between 115° and 125° F. and an oil content less than 15 weight percent. This oxidate is reacted with a nonylphenol-ethylene oxide reaction product to produce the demulsifier.

3,682,991
3,3,5-TRIMETHYLCYCLOHEXYL-ALKYL-CARBOXYLIC ACIDS

Benjamin F. Tullar, Chatham, and Roman R. Lorenz, East Greenbush, both of N.Y., assignors to Sterling Drug Inc., New York, N.Y.

Division of Ser. No. 724,617, April 26, 1968, Pat. No. 3,578,686. This application Oct. 19, 1970, Ser. No. 82,149
Int. Cl. C08h *17/36*
U.S. Cl. 260—413 11 Claims

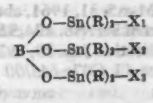
2-Hydroxy-3-[(3,3,5-trimethylcyclohexyl)-$(CH_2)_n$]-1,4-naphthoquinones where *n* is an integer from 4 to 12 inclusive, having antimalarial properties, are prepared: (a) by heating 2-hydroxy-1,4-naphthoquinone with a diacyl peroxide of the formula [(3,3,5-trimethylcyclohexyl)-$(CH_2)_n$—CO]$_2O_2$ where *n* is 4 to 12 inclusive to produce said naphthoquinones where *n* is 4 to 12, respectively: (b) by oxidizing under alkaline conditions 2-hydroxy-3-[(3,3,5-trimethylcyclohexyl)-$(CH_2)_n$]-1,4-naphthoquinone where *n* is 5 to 12 inclusive to produce the corresponding compound where *n* is 4 to 11, respectively; and, (c) by the steps of oxidizing 2-[(3,3,5-trimethylcyclohexyl)-$(CH_2)_n$]-1-naphthol where n is 4 to 12 inclusive to form 2-[(3,3,5-trimethylcyclohexyl)-$(CH_2)_n$]-1,4-naphthoquinone, reacting the latter with a peroxide under alkaline conditions to form 2-[(3,3,5-trimethylcyclohexyl)-$(CH_2)_n$]-1,4-naphthoquinone-2,3-oxide and hydrolyzing the 2,3-oxide under acidic conditions to yield 2-hydroxy-3-[(3,3,5-trimethylcyclohexyl)-$(CH_2)_n$]-1,4-naphthoquinone. Novel intermediates include compounds of the formula (3,3,5-trimethylcyclohexyl)-$(CH_2)_x$—COOH where *x* is an integer from 3 to 12 inclusive.

3,682,992
BORON-CONTAINING ORGANOTIN COMPOUNDS

Yohei Kawakami, Osaka-fu; Toshio Seki, Osaka-shi, and Kozaburo Suzuki, Kobe-shi, all of Japan, assignors to Nitto Kasei Co., Ltd., Osaka, Japan

Division of Ser. No. 700,698, Jan. 26, 1968, Pat. No. 3,539,529. This application Dec. 8, 1969, Ser. No. 880,449
Int. Cl. C08h *17/36*
U.S. Cl. 260—414 20 Claims

Novel compositions and a stabilized polyvinyl chloride resin composition comprising essentially, in a predominant amount, a polyvinyl chloride resin and, in a small amount, at least one boron-containing organotin compound having the formula



wherein R is a member selected from the group consisting of alkyl alkenyl, aralkyl, alkylaryl and aryl; X_1 is a member selected from the group consisting of the residues of monomercapto compounds, dimercapto compounds and

polymercapto compounds, said residues containing at least one free sulfhydryl radical; and X_2 and X_3 are members selected from the group consisting of hydroxyl, the same residues as X_1, the residues of carboxylic acids and maleic acid monoesters, and the residues of mercapto compounds containing no free sulfhydryl radical.

3,682,993

PURIFICATION OF OILS

Paul W. Wetzold, Yorktown Heights, N.Y., assignor to Paispearl Products, Inc., Hastings-on-Hudson, N.Y.

Filed Jan. 29, 1970, Ser. No. 12,524

Int. Cl. C09f 5/10

U.S. Cl. 260—428.5 **10 Claims**

Vile smelling oils, and particularly fish oils, are purified by first subjecting the oil to a steam stripping operation under vacuum and in the presence of a small proportion of organic solvent, such as an aliphatic hydrocarbon solvent in an amount of from 2 to about 10 percent, so as to remove volatile amines together with wax and wax ester components. The stripped oil is then purified to remove malodorous components by subjecting the same to adsorption with a quaternary ammonium-acidic clay adduct.

3,682,994

Patent Not Issued For This Number

3,682,995

COPPER CHELATE

Paul H. Ogden, Woodbury, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed May 4, 1970, Ser. No. 34,603

Int. Cl. C07f 1/08

U.S. Cl. 260—438.1 **10 Claims**

Copper chelates of fluorinated N,N′ bisacylhydrazides and tetrakisacylhydrazides are provided which are insoluble in water but are soluble in nonpolar organic solvents and which are useful as dyes.

3,682,996

ZEOLITE ESTERS

George T. Kerr, Trenton, N.J., assignor to Mobil Oil Corporation

Filed Feb. 24, 1970, Ser. No. 13,784

Int. Cl. C07f 5/06; B01j 11/40

U.S. Cl. 260—448 C **13 Claims**

As a novel composition of matter a crystalline alumino-silicate ester made by reacting a crystalline aluminosilicate having an available hydrogen atom with an organic silane having a SiH group.

3,682,997

SODIUMTHIOSULFATOETHYL KETONES AND THEIR USE AS POLYMER MODIFIERS

Giuliana C. Tesoro, 278 Clinton Avenue, Dobbs Ferry, N.Y., and Stephen B. Sello, 43 Reservoir Place, Cedar Grove, N.J.

Division of Ser. No. 650,148, May 11, 1967, Pat. No. 3,506,676, which is a division of Ser. No. 455,333, May 12, 1965, Pat. No. 3,338,883, which is a continuation-in-part of Ser. No. 99,673, March 31, 1961, abandoned, and a continuation-in-part of Ser. No. 404,525, Oct. 16, 1964, abandoned. This application Jan. 29, 1970, Ser. No. 12,533

Int. Cl. C07c 143/00

U.S. Cl. 260—453 R **2 Claims**

Bis [2-(sodium thiosulfato)ethyl] ketone, 2-(methoxy)ethyl 2-(sodium thiosulfato)ethyl ketone and propenyl 2-(sodium thiosulfato)ethyl ketone are useful as modifiers for polymers containing active hydrogen, especially cellulose.

3,682,998

Patent Not Issued For This Number

3,682,999

BIS(CARBOXYPHENYL)ESTERS OF BENZENEDISULFONYL HALIDES

Burton M. Rein, Piscataway, N.J., assignor to Mobil Oil Corporation

Division of Ser. No. 621,774, March 9, 1967, Pat. No. 3,518,294. This application Dec. 10, 1969, Ser. No. 880,517

Int. Cl. C07c 143/68

U.S. Cl. 260—456 P **2 Claims**

Aromatic dicarboxylic acids having three or more phenylene groups and two sulfonate linkages. They are prepared by oxidation of (A) bis-toluenesulfonate ester of a bis-phenol or (B) m-benzenedisulfonate of a cresol. These dicarboxylic acids are polymerizable with glycol to produce thermally stable polyesters.

3,683,000

POLYHALO ETHYL-AND POLYHALO VINYL-DITHIOETHYL CARBONATES AND THIO CARBONATES

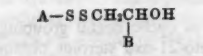
Carl D. Emerson, Kansas City, Mo., and Paul C. Aichenegg, Prairie Village, Kans., assignors to Baychem Corporation, New York, N.Y.

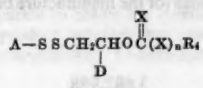
Division of Ser. No. 757,487, Sept. 4, 1968, which is a continuation-in-part of Ser. No. 560,125, June 24, 1966, abandoned. This application March 27, 1969, Ser. No. 811,233

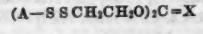
Int. Cl. C07c 149/12, 154/00; A01n 9/12

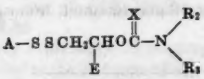
U.S. Cl. 260—463 **7 Claims**

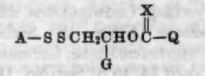
Compounds are prepared having one of the formulas

(1) 

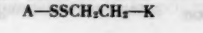
(2) 

(3) 

(4) 

(5) 

and

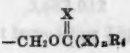
(6) 

where

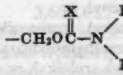
A is selected from the group consisting of di to tetrahaloethyl and di to trihalovinyl;

B is selected from the group consisting of hydrogen and $-CH_2OH$;

D is selected from the group consisting of hydrogen and



E is selected from the group consisting of hydrogen and



G is selected from the group consisting of hydrogen and

n is 0 or 1,

X is selected from the group consisting of oxygen and sulfur except that when n is 0 in formula (2) X must be oxygen;

Q is halogen;

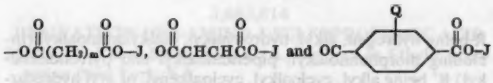
R_1 is selected from the group consisting of alkyl, phenyl, lower alkyl phenyl, halo lower alkyl, halophenyl, naphthyl, lower alkyl naphthyl and lower alkyl halophenyl;

R_2 and R_3 individually are the same as R_1 or hydrogen with the proviso that not more than one of R_2 and R_3 is hydrogen and collectively together with the adjacent nitrogen atom form a five to six membered heterocyclic ring having up to 1 oxygen atom therein;

R_4 is R_1 or

or phenyl ethylene or halophenoxymethyl having up to 3 halogens and up to 1 methyl group on the aromatic ring;

K is selected from the group consisting of



J is selected from the group consisting of hydrogen and $ASSCH_2CH_2$;

m is an integer from 0 to 2 inclusive, and all halogen atoms in the compounds have an atomic weight of 35 to 80.

The compounds are useful as herbicides, fungicides, nematocides, defoliants and desiccants. 1,2,2-trichloroethyl-dithioethyl-2′-methyl-4′-chlorophenoxy acetate is a particularly effective herbicide.

3,683,001

CERTAIN 1-ARYL-3-(4-SUBSTITUTED CYCLOHEXYL) UREAS AND THIOUREAS

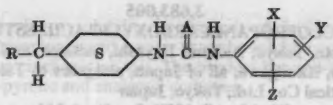
Richard N. Knowles, Hockessin, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 574,499, Aug. 18, 1966. This application April 20, 1967, Ser. No. 635,307

Int. Cl. C07c *121/52, 157/06, 127/16*

U.S. Cl. 260—465 D **10 Claims**

Animal repellant compounds of the formula:



wherein

A is oxygen or sulfur,

R is alkyl, cycloalkyl, cycloalkylalkyl, bicycloalkyl and tricycloalkyl and X, Y and Z are hydrogen, halogen, nitro, alkyl (C_1 to C_3), trifluoromethyl, cyano and alkoxy (C_1 to C_3). Typical is 1-phenyl-3-(cis-4-cyclohexylmethylcyclohexyl)-urea useful as an animal repellant.

3,683,002

OPTICAL SEPARATION OF METHIONINE NITRILE

Wilhelmus H. J. Boesten, Sittard, and Geertrudes H. Suverkropp, Geleen, both of Netherlands, assignors to Stamicarbon N.V., Heerlen, Netherlands

Filed Feb. 10, 1969, Ser. No. 798,156

Claims priority, application Netherlands, Feb. 8, 1968, 6801823

Int. Cl. C07c *121/42*

U.S. Cl. 260—465.5 R **6 Claims**

A process for preparing optically active methionine, methionine nitrile, and methionine amide is disclosed. A mixture of L- and D-methionine nitrile is at least partially converted to a salt of optically active α-phenoxypropionic acid, and the resulting salt is subjected to optical separation by crystallization. The resultant optically active methionine nitrile may be converted into methionine or methionine amide. Optically active methionine or methionine amide is useful as a food and feed supplement.

3,683,003

PROCESS FOR THE PRODUCTION OF MALONIC ACID DINITRILE

Klaus Aufdereggen, Visp; Urs Arni, Brig; Adriano Faucci, and August Stocker, both of Visp, all of Switzerland, assignors to Lonza Ltd., Basle, Switzerland

Filed March 20, 1970, Ser. No. 21,485

Claims priority, application Switzerland, June 20, 1969, 9422/69

Int. Cl. C07c *121/22, 121/02*

U.S. Cl. 260—465.8 R **5 Claims**

Malonic acid dinitrile is prepared by reacting acetonitrile and cyanogen chloride in the gaseous phase at temperatures between 780° C. and 1,200° C. Yields exceeding 80 percent can be obtained and when the reactants flow through the reactor in a condition exceeding laminar flow and extending into turbulent flow, molar ratios of acetonitrile to cyanogen chloride of 4:1 and over are preferred with residence times at reaction temperatures of less than about 5 seconds.

3,683,004

HAIR DYE PROTECTIVE AGENT

Harold S. Akrongold; Rochelle Akrongold, both of 39 Cathay Rd., East Rockaway, Long Island, and Michael Goldsmith, 509 Madison Avenue, New York, all of N.Y.

Filed June 18, 1970, Ser. No. 47,605

Int. Cl. C07c *121/32, 121/52*

U.S. Cl. 260—465.9 **2 Claims**

A protective agent for hair dyes to prevent fading of the dye because of the action of sunlight or other factors. This agent is a reaction product of either acrylonitrile or a mixture of acrylonitrile-benzophenone and an oxy-substituted benzophenone with phenacetin. The proportion of the two reactants may vary from about 3:1 to about 200:1 parts by weight of the acrylonitrile or acrylonitrile-benzophenone mixture relative to the phenacetin.

3,683,005
CYCLOPROPANECARBOXYLIC ACID ESTERS

Kaoru Sota, Tokyo; Akifumi Hayashi, Saitama, and Takehiro Amano, Kanagawa, all of Japan, assignors to Taisho Pharmaceutical Co., Ltd., Tokyo, Japan

Filed Jan. 8, 1970, Ser. No. 1,541

Claims priority, application Japan, Jan. 9, 1969, 44/1827; Jan. 20, 1969, 44/3929; April 18, 1969, 44/30362; May 31, 1969, 44/42779; May 31, 1969, 44/42780; June 7, 1969, 44/44847; June 23, 1969, 44/49445; July 19, 1969, 44/57199; Sept. 6, 1969, 44/70809; Sept. 19, 1969, 44/74503; Sept. 30, 1969, 44/77872; Oct. 1, 1969, 44/78450; Oct. 22, 1969, 44/83897; Nov. 6, 1969, 44/88908; Nov. 11, 1969, 44/90238

Int. Cl. C07c *69/74*

U.S. Cl. 260—468 P 13 Claims

This invention relates to novel cyclopropanecarboxylic acid esters, to a process for preparing the same and to insecticidal composition containing the same.

3,683,006
CYCLODECAPENTAENE COMPOUNDS

John H. Fried, Palo Alto, Calif., assignor to Syntex Corporation, Panama, Panama

Continuation-in-part of Ser. No. 742,140, July 3, 1968, abandoned. This application Sept. 9, 1970, Ser. No. 70,905

Int. Cl. C07c *61/28, 61/32*

U.S. Cl. 260—468 B 11 Claims

Novel 1,6-methano-, 1,6-dichloromethano-, and 1,6-difluoromethano- cyclodecapentaene alcohols, aldehydes and acids and derivatives having anti-inflammatory and fibrinolytic activity.

3,683,007
ALKYL-N-(4-ALKYL-OR CYCLOALKYL-METHYL CYCLOHEXYL) CARBAMATES

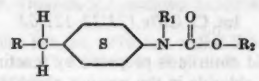
Richard N. Knowles, Hockessin, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 574,495, Aug. 18, 1966. This application April 20, 1967, Ser. No. 635,302

Int. Cl. C07c *69/00, 69/74*

U.S. Cl. 260—468 B 9 Claims

Alkyl-N-(4-higher alkyl substituted cyclohexyl) carbamates of the formula:



wherein

R is alkyl, cycloalkyl, cycloalkylalkyl, bicycloalkyl or tricycloalkyl;

R_1 is hydrogen, or alkyl; and

R_2 is alkyl.

Typical is methyl-N-(cis-4-cyclohexylmethylcyclohexyl)carbamate useful as an animal repellant.

3,683,008
PHENYL PROPYLAMINO ALKANOLS AND THEIR ESTERS

Laszlo Beregi, Boulogne Sur/Seine; Pierre Hugon, Rueil Malmaison; Jean-Claude Le Douarec, Suresnes, and Jacques Duhault, Chatou, all of France, assignors to Societe en nom collectif "Science Union Et Cie, Societe Francaise De Recherchie Medical", Surenes, France

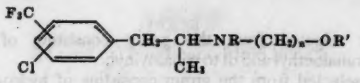
Filed Jan. 9, 1970, Ser. No. 1,878

Claims priority, application France, Jan. 29, 1969, 6901528

Int. Cl. C07c *91/06, 93/00*

U.S. Cl. 260—477 3 Claims

Phenyl propylamino alkanols and their esters of the formula:



wherein

- R is hydrogen or lower alkyl,
- n is 2 or 3, and
- R′ is hydrogen or COR″ wherein R″ is
  - phenyl, halophenyl, lower alkylphenyl, lower alkyloxyphenyl, methylenedioxyphenyl, nitrophenyl, trifluoromethylphenyl, or
  - arylalkyl, haloarylalkyl, lower alkylarylalkyl, lower alkyloxyarylalkyl, methylenedioxyarylalkyl, nitroarylalkyl, trifluoromethyl-arylalkyl, or
  - aryloxyalkyl or haloaryloxyalkyl.

These compounds possess anorexigenic, analgesic, anticonvulsivant and lipid metabolism regulating properties.

3,683,009
α,β-BIS(TRIFLUOROMETHYL) STILBENES

William J. Middleton, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

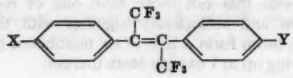
Filed Oct. 10, 1968, Ser. No. 766,631

Int. Cl. C07c *69/16, 39/24*

U.S. Cl. 260—479 R 7 Claims

Described and claimed are

1. the α,β-bis(trifluoromethyl)stilbenes of the formula



wherein X and Y, which may be the same or different, are H, OR or

R being hydrogen, alkyl, hydroxyalkyl, dialkylaminoalkyl (including morpholinoalkyl, piperidinoalkyl and pyrrolidinoalkyl) R′ being alkyl, cycloalkyl, cycloalkenyl, or aryl hydrocarbon group, the total carbon content of each R and R′ not exceeding 12 carbon atoms;

2. pharmaceutical compositions of the aforementioned α,β-bis(trifluoromethyl)stilbenes; and
3. the use of the compounds and compositions of this invention as antifertility agents.

3,683,010
PLANT HORMONE CARBOXYLIC ACID SALTS OF ALIPHATIC POLYAMINES

Richard A. Reck, Hinsdale, and Walter W. Abramitis, Downers Grove, both of Ill., assignors to Armour Industrial Chemical Company

Continuation-in-part of Ser. No. 300,108, Aug. 5, 1963, abandoned. This application Sept. 26, 1966, Ser. No. 581,725

Int. Cl. C07c *63/50*

U.S. Cl. 260—501.16 5 Claims

Plant hormone carboxylic acid salts of aliphatic polyamines having at least six carbon atoms in an aliphatic radical thereof, useful as herbicidal agents.

3,683,011

Patent Not Issued For This Number

3,683,012

Patent Not Issued For This Number

3,683,013

COMPOUNDS CONTAINING SULPHONIC ACID GROUPS

Klaus Walz, Leverkusen-Wiesdorf; Walter Hees, Cologne-Hoehenberg, and Mathieu Quaedvlieg, Opladen, all of Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

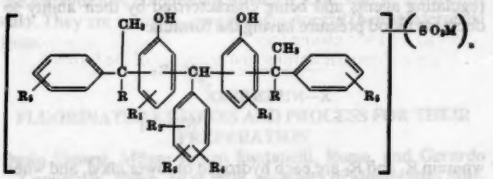
Filed Feb. 18, 1970, Ser. No. 12,454

Claims priority, application Germany, Feb. 27, 1969, P 19 09 966.2

Int. Cl. C07c *143/42*

U.S. Cl. 260—512 R **7 Claims**

Compounds containing sulphonic acid groups of general formula



in which R denotes hydrogen or a methyl group, R_1 denotes hydrogen, an alkyl, cycloalkyl, aralkyl or aryl group or a halogen atom, R_2, R_3 and R_4 independently of one another denote hydrogen, a methyl, methoxy, hydroxyl or nitro group or a halogen atom, R_5 denotes hydrogen or a methyl or ethyl group, n denotes a number between 2 and 4 and M denotes hydrogen, an alkali or alkaline earth atom or an ammonium group, a process for their manufacture and their use as dyeing auxiliaries when dyeing natural and synthetic polyamides with 1:2-metal complex dyestuffs.

3,683,014

DERIVATIVES OF 2-AMINO-3-SULFOPROPIONIC ACID

Meiling T. Yang, Baton Rouge, La., assignor to Ethyl Corporation, New York, N.Y.

Filed Oct. 14, 1970, Ser. No. 80,781

Int. Cl. C07c *143/12*

U.S. Cl. 260—513 N **7 Claims**

To obviate eutrophication of water, non-phosphorus detergent builders are provided. These are the water-soluble salts of 2-[N,N-di-(carboxymethyl)]amino-3-sulfopropionic acid (e.g., the tetrasodium salt thereof). Conventional detergent actives may be used with these builders. Synthesis of the builders is described.

3,683,015

RESOLUTION OF 2-(6-METHOXY-2-NAPHTHYL)PROPIONIC

Norman H. Dyson, 3401 Hillview Ave., Palo Alto, Calif.

Filed Nov. 4, 1970, Ser. No. 86,976

Int. Cl. C07c *69/76*

U.S. Cl. 260—520 **5 Claims**

Resolution of 2-(6-methoxy-2-naphthyl)propionic acid with cinchonidine to yield the d-isomer is greatly improved by using, in combination with the cinchonidine, an optically inactive amine having a basicity, pKa, greater than 8 and less than 12 and having a solubility as the salt of 2-(6-methoxy-2-naphthyl)propionic acid greater than the solubility of the corresponding cinchonidine salt. The product has anti-inflammatory, anti-pyretic and analgesic activities.

3,683,016

STAGED CATALYST ADDITION FOR CATALYTIC LIQUID PHASE OXIDATION OF PSEUDOCUMENE TO TRIMELLITIC ACID

John K. Darin, Munster, Ind., and Dileep R. Kanitkar, Chicago, Ill., assignors to Standard Oil Company, Chicago, Ill.

Filed April 24, 1970, Ser. No. 31,786

Int. Cl. C07c *63/02*

U.S. Cl. 260—524 R **3 Claims**

Reduced tendency for oxidation inhibition leading to formyl phthalic acids and methyl phthalic acids during liquid phase oxidation of 1,2,4-trimethylbenzene with molecular oxygen in the presence of acetic acid and catalysis provided by a source of bromine and staged use of two or more heavy metals is further reduced by staging addition of cobalt, manganese and cerium by maintaining a weight ratio of bromine to total metals above 1.0 in all stages and conducting the oxidation at a temperature in the range of 360°–440° F. with the last stage above 400° F. At the same time reduced oxidation of acetic acid to oxides of carbon and water and reduced requirements for total metal and bromine sources are achieved without sacrifice of reaction time or yield and quality of trimellitic acid.

3,683,017

OXIDATION OF P-XYLENE AND P-TOLUJC ACID TO TEREPHTHALIC ACID

John W. Ager, Jr., Princeton, N.J., assignor to FMC Corporation, New York, N.Y.

Filed April 1, 1970, Ser. No. 24,801

Int. Cl. C07c *63/02*

U.S. Cl. 260—524 R **4 Claims**

Terephthalic acid (TPA) is prepared by oxidizing p-xylene, p-toluic acid (PTA) or a mixture of the two, by reaction under pressure of at least 50 psig and at temperatures of about 140° to 250° C., carrying out the reaction in glacial acetic acid as the reaction medium, and using as catalyst cobalt chloride alone, or preferably a combination of cobalt or nickel with chromium and manganese salts, activated by chloride ion. Tungsten is an optional ingredient of the catalyst.

3,683,018

INTEGRATED OXIDATION OF ISOMERIC XYLENE MIXTURE TO ISOMERIC PHTHALIC ACID MIXTURE AND SEPARATION OF MIXTURE OF ISOMERIC PHTHALIC ACIDS INTO INDIVIDUAL ISOMER PRODUCTS

George M. Longland, Jr., Highland, Ind., assignor to Standard Oil Company, Chicago, Ill.

Filed May 26, 1969, Ser. No. 827,732

Int. Cl. C07c *51/42*, *51/44*, *63/02*

U.S. Cl. 260—524 R **7 Claims**

Liquid phase oxidation of isomeric xylene mixture with molecular oxygen-containing gas (e.g. air or oxygen gas) in the presence of aqueous or acetic acid reaction media and catalysis provided by one or more heavy metals (metals of about 50 to about 200 atomic weight) or by a side-chain oxidation initiator or promotor (bromine source, or acetaldehyde or methylenic ketone) provides oxidation effluent containing mixture of isomeric phthalic acids for product crystallization and reaction media displacement from concentrate of said effluent by contact of the concentrate with water in a single step, preferably conducted with a vertical column of water, thereby producing aqueous acetic acid for feed to acetic acid recovery and recycle to oxidation and aqueous slurry of mixture of isomeric phthalic acids as feed for separa-

tion into individual phthalic acid isomer products. Iso- and tere-phthalic acids in particular are separated from mixtures of the same by crystal size classification.

3,683,019

2-AMINOLICOSANEDIOIC ACIDS

Hachiro Wakamatsu, Tokyo; Taketoshi Okami, and Jiro Sato, both of Kanagawa-ken, all of Japan, assignors to Ajinomoto Co., Inc., Tokyo, Japan

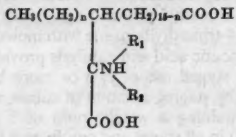
Filed March 2, 1970, Ser. No. 15,873

Claims priority, application Japan, March 14, 1969, 44/19349

Int. Cl. C07c *101/20*

U.S. Cl. 260—534 E **2 Claims**

2-Aminoeicosansdiaic acids of the formula



wherein n is 7 or 8, and R_1 and R_2 are hydrogen or lower alkyl, are readily prepared by Strecker reaction and hydrolysis from the mixture of methyl 9-formylstearate and methyl 10-formylstearate which results from hydroformylation of methyl oleate, and is referred to hereinafter as methyl 9(10)-formylstearate. The aqueous neutral or alkaline solutions of the acids have excellent detergent properties.

3,683,020

BIS-OXALIC ACID DIAMIDES FOR USE AS STABILIZERS

Christian Luethi, Muenchenstein; Hans-Rudolf Biland, Gelterkinden, and Max Duennenberger, Frenkendorf, all of Switzerland, assignor to Ciba-Geigy AG

Filed April 2, 1968, Ser. No. 718,244

Claims priority, application Switzerland, April 11, 1967, 5132/67

Int. Cl. C07c *103/38*

U.S. Cl. 260—558 R **12 Claims**

The present invention relates to certain novel bis-oxalic acid diamide derivatives which are especially useful as ultraviolet absorbers for organic materials. Said new bis-oxalic acid diamides correspond to the formula

$$A_1—NH—CO—CO—NH—B_1—NH—CO—CO—NH—A_1$$

wherein A_1 each represents an alkyl, alkenyl, cycloalkyl, aralkyl, aryl or amino group, with these groups optionally containing further substituents, and B_1 represents an alkylene or arylene grouping which is free of ethylene double bonds and may be interrupted by hetero-atoms, wherein the groups A_1 and B_1 must not displace the absorption maximum of these compounds to above 370mμ, and wherein at least one of the groups A_1 and B_1 must contain a benzene ring which is directly bonded to a —NH— group according to the above formula.

3,683,021

Patent Not Issued For This Number

3,683,022

N-ACETYL-4-CYCLOALKLOXYCYCLOHEXYLAMIDES

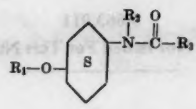
Richard N. Knowles, Hockessin, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed April 20, 1967, Ser. No. 634,417

Int. Cl. C07c *103/12*

U.S. Cl. 260—561 R **8 Claims**

N-Acetyl-4-cycloalkyloxycyclohexylamines of the formula:



wherein

R_1 is cycloalkyl,

R_2 is hydrogen or alkyl, and

R_3 is hydrogen or alkyl.

Typical is N-acetyl-4-cyclohexyloxycyclohexylamine useful for repelling animals.

3,683,023

AMINO-GUANIDINE DERIVATIVES

Werner Winter, Seckenheimerstrasse 16; Max Thiel, S 6, 35, both of Mannheim; Kurt Stach, Stegerwaldweg 13, Mannheim-Waldhof; Wolfgang Schaumann, Sandhoferstrasse 124, Mannheim-Waldhof; Karl Dietmann, Amalie-Sieveking-Weg 11, Mannheim-Waldhof, and Klaus Ritter, L 14, 7, Mannheim, all of Germany

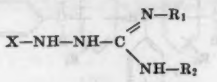
Filed May 27, 1969, Ser. No. 828,366

Claims priority, application Germany, July 9, 1968, P 17 68 867.4

Int. Cl. C07c *129/08*

U.S. Cl. 260—564 F **5 Claims**

Amino-guanidine derivatives constituting blood pressure regulating agents and being characterized by their ability to decrease blood pressure having the formula:



wherein R_1 and R_2 are each hydrogen or lower alkyl, and when joined together form alkylene containing two to three carbon atoms, and X is phenyl substituted by at least one halogen atom, and the salts thereof with pharmaceutically acceptable acids.

3,683,024

O-POLYALKOXYLATED HIGH MOLECULAR WEIGHT-N-ALKANONE AND N-ALKANAL OXIMES

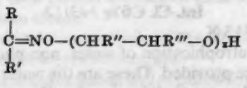
Lawrence F. Kuntschik, and Robert S. Edwards, both of Nederland, Tex., assignors to Texaco Inc., New York, N.Y.

Filed June 18, 1968, Ser. No. 737,866

Int. Cl. C07c *131/00*

U.S. Cl. 260—566 AE **1 Claim**

There is provided O-polyalkoxylated high molecular weight n-alkanone and n-alkanal oximes corresponding to the formula:



by contacting an n-paraffin oxime with a base, and thereafter reacting the oxime with an oxirane in the substantial absence of water. The high molecular weight n-alkanone and n-alkanal oximes provided herein are useful as nonionic surfactants, as biodegradable detergents, as chemical intermediates in the production of anionic detergents, as lubricating oil additives, and as anti-rust and anti-icing additives in fuels.

3,683,025

HYDROGENATION OF NITROBENZENES

Henry W. Pons, 1 Pine Tree Road, Lock Haven, Pa.

Filed May 6, 1969, Ser. No. 822,324

Int. Cl. C07c *85/10*

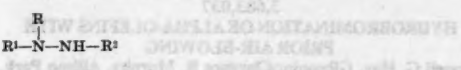
U.S. Cl. 260—575 **7 Claims**

Nitrobenzenes, particularly nitrobenzenes containing active

chlorine atoms, are hydrogenated at low pressures and temperatures in the presence of substantial amounts of water using a supported nickel catalyst promoted by zirconium.

3,683,026
TRISUBSTITUTED HYDRAZINES
Karl-Heinz Koenig, Frankenthal, Germany, assignor to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen/Rhine, Germany
Filed Feb. 18, 1969, Ser. No. 800,244
Claims priority, application Germany, Feb. 28, 1968, P 16 68 872.5
Int. Cl. C07c *109/00, 109/02, 109/04*
U.S. Cl. 260—583 B 9 Claims

Trisubstituted hydrazines having the general formula (I):

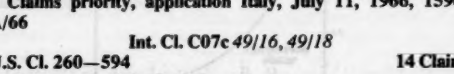


(I)

in which R and R^1 each denotes an alkyl, cycloalkyl, aralkyl or aryl radical or together with the nitrogen atom may denote a heterocyclic ring and R^2 denotes an α,β- or β,γ-unsaturated aliphatic hydrocarbon radical or an arylmethyl radical (with the exception of compounds in which R, R^1 and R^2 are identical). They are valuable growth regulators in their quaternized form.

3,683,027
FLUORINATED KETONES AND PROCESS FOR THEIR PREPARATION
Dario Sianesi, Milan; Renzo Fontanelli, Rome, and Gerardo Caporiccio, Milan, all of Italy, assignors to Montecatini Edison S.p.A., Milan, Italy
Division of Ser. No. 651,128, July 5, 1967, Pat. No. 3,513,203. This application March 31, 1970, Ser. No. 24,371
Claims priority, application Italy, July 11, 1966, 15969 A/66
Int. Cl. C07c *49/16, 49/18*
U.S. Cl. 260—594 14 Claims

Compounds of the formula:



wherein M, N and L may each be zero or from 1 to 99, the sum of M+N+L being zero or a number between 1 and 99, the ratio of N+L/M+1 being between zero and 2.

Compounds prepared by heating a specified perfluorinated polyethers.

3,683,028
PROCESS FOR THE MANUFACTURE OF TRISHYDROXYMETHYLPHOSPHINE OXIDE
Hans Haas, 249 Industriestrasse, Knapsack, near Cologne, Germany
Filed May 8, 1970, Ser. No. 35,889
Claims priority, application Germany, June 16, 1969, P 19 30 521.6
Int. Cl. C07f *9/02*
U.S. Cl. 260—606.5 P 7 Claims

Production of trishydroxymethylphosphine oxide from trishydroxymethylphosphine in the presence of water. The oxide is produced by reacting 1 mol of the phosphine with at least 1 mol water in contact with between 0.1 and 10 weight percent of a formaldehyde catalyst, based on the phosphine, at temperatures of between 60° and 200° C.

3,683,029
CHLORINATION PROCESS
Harold E. Dorrenbos, Midland, Mich., assignor to the Dow Chemical Company, Midland, Mich.
Continuation-in-part of Ser. No. 724,635, April 26, 1968, abandoned. This application June 3, 1970, Ser. No. 43,183
Int. Cl. C07c *25/04, 43/28*
U.S. Cl. 260—612 R 11 Claims

SCl_3AlCl_4 reacts in solution to perchlorinate the nucleus of benzene, mono- or di-substituted perhaloalkyl benzenes and oligophenylenes. The perchlorinated compounds are chemical intermediates, monomers to heat-resistant polymers and extreme pressure lubricant additives.

3,683,030
ALKYLATION OF PHENOLIC OR THIOPHENOLIC COMPOUNDS
Allen K. Sparks, Des Plaines, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
Filed July 14, 1969, Ser. No. 841,588
Int. Cl. C07c *41/00, 39/06*
U.S. Cl. 260—613 D 10 Claims

Alkylating a phenolic or thiophenolic compound with an alkylating agent in contact with a catalyst comprising silica, metal oxide and nitrogen-containing Lewis base.

3,683,031
SUBSTITUTED METHYL ETHERS OF 2-BRANCHED-ALKYL-4,6-DINITROPHENOLS
Gerhard Zumach; Ingeborg Hamman, both of Cologne; Gunter Unterstenhofer, Opladen, and Richard Wegler, Leverkusen, all of Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
Filed April 24, 1970, Ser. No. 31,784
Claims priority, application Germany, May 6, 1969, P 19 22 927.7
Int. Cl. C07c *43/30*
U.S. Cl. 260—613 D 6 Claims

Substituted methyl ethers of 2-branched-alkyl-4,6-dinitrophenol, i.e. ethers wherein the methyl group, which may be substituted by an optionally halogen-substituted alkyl radical, is substituted by an alkoxy or amido group, which possess arthropodicidal, and especially acaricidal and insecticidal, properties and a process for their production.

3,683,032
COMPOSITIONS STABILIZED WITH AN ARYLOXY (ALKYLOXY) ALKANE
Milton Braid, Westmont, N.J., assignor to Mobil Oil Corporation
Division of Ser. No. 650,173, June 30, 1967, Pat. No. 3,497,181, which is a continuation-in-part of Ser. No. 500,368, Oct. 21, 1965, abandoned, which is a continuation-in-part of Ser. No. 471,401, July 21, 1965, abandoned. This application Nov. 26, 1969, Ser. No. 880,428
Int. Cl. C07c *43/20*
U.S. Cl. 260—613 R 1 Claim

Organic substances, normally susceptible to oxidative deterioration are protected by the presence of a minor amount of an aryloxy (alkyloxy) alkane.

3,683,033
NOVEL CYCLOALKYLATED PHENOL AND CYCLOALKYLATED PHENOL DERIVATIVES
Hans H. Stockmann, Plainfield, and Eric A. Meier, New Brunswick, both of N.J., assignors to National Starch and Chemical Corporation, New York, N.Y.
Filed May 14, 1969, Ser. No. 824,711
Int. Cl. C07c *39/12*
U.S. Cl. 260—619 D 3 Claims

Novel cyclododecyl substituted phenols and a process for the preparation thereof are described; said compounds being

useful as antioxidants for polymers, rubbers, oils, lubricants and the like.

3,683,034

PROCESS FOR THE PREPARATION OF SUBSTITUTED HYDROQUINONES

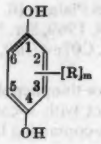
William Von E. Doering, Cambridge, Mass.; William J. Farrissey, Jr., Northford, Conn.; Floro F. Frulla, Wallingford, Conn., and Durvasula V. Rao, Hamden, Conn., assignors to The Upjohn Company, Kalamazoo, Mich.

Filed April 16, 1970, Ser. No. 29,279

Int. Cl. C07c *39/12, 39/02*

U.S. Cl. 260—620 **7 Claims**

A novel process is disclosed for preparing substituted hydroquinone of the formula:



wherein R is member selected from the group consisting of lower-alkyl, aryl, and lower alkoxy and *m* is an integer of 1 to 4; by reductive hydrolysis of the corresponding nitrosophenol.

3,683,035

PROCESS FOR MANUFACTURING ALCOHOLS BY OXIDATION OF HYDROCARBONS

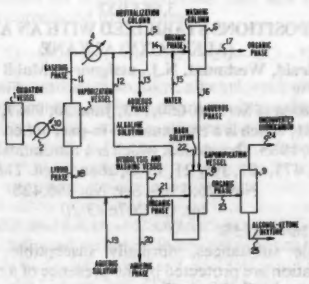
Jacob Alagy, La Celle St Cloud; Francois Bigache, and Bernard Cha, both of Chatou, all of France, assignors to Institut Francais Du Petrole Des Carburants Et Lubrifiants, Rueil Malmaison Hauts de Seine, France

Filed May 14, 1968, Ser. No. 729,035

Claims priority, application France, May 29, 1967, 67108317

Int. Cl. C07c *35/08, 31/02*

U.S. Cl. 260—631 B **4 Claims**



A process for manufacturing alcohols by oxidation of saturated hydrocarbons containing five–eight carbon atoms per molecule, in the liquid phase, by means of molecular oxygen, in the presence of a boron compound, wherein the oxidation product is successively hydrolyzed, saponified and distilled, said process comprising vaporizing a part of the unconverted hydrocarbon contained in the said oxidation product, before saponification, and thereafter treating the vaporized hydrocarbon by means of mineral base and finally recycling said hydrocarbon to the oxidation zone.

3,683,036

METHOD FOR PREPARING PERFLUOROCYCLOOLEFINS

Dewey G. Holland, and Eric Vernon Garis, both of Allentown, Pa., assignors to Air Products and Chemicals, Inc., Allentown, Pa.

Filed Oct. 7, 1969, Ser. No. 864,514

Int. Cl. C07c *17/00, 23/08, 23/10*

U.S. Cl. 260—648 F **5 Claims**

Five and six membered ring perfluorinated cyclic acid and acid fluorides are reacted with organic acids, salts of organic acids, alkanol sulfate salts, aqueous basic solutions or molecular sieves to obtain five and six membered ring fluoroalkyl substituted and unsubstituted perfluoroolefins having six to 10 carbon atoms.

3,683,037

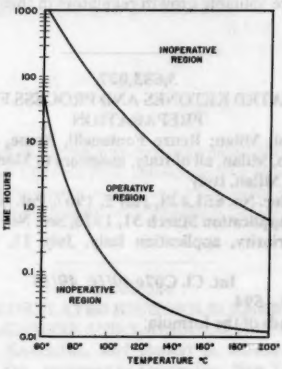
HYDROBROMINATION OF ALPHA-OLEFINS WITH PRIOR AIR-BLOWING

Russell G. Hay, Gibsonia; Clarence R. Murphy, Allison Park, and William L. Walsh, Glenshaw, all of Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.

Filed Sept. 9, 1969, Ser. No. 856,374

Int. Cl. C07c *17/08*

U.S. Cl. 260—663 **10 Claims**



A method is provided for the uniform activation of substantially pure alpha-olefins such as those prepared by the ethylene build-up procedure using catalysts such as $Al(Et)_3$. The olefin is activated by air-blowing at a temperature from 60° to 200° C. The activated olefin is thereafter reacted with anhydrous HBr to produce the desired primary alkyl bromide in the absence of an extraneously added catalyst at a temperature less than 50° C.

3,683,038

5-VINYLBICYLO (2.2.1)HEPT-2-ENE ISOMERIZATION

Wolfgang Schneider, Brecksville, Ohio, assignor to The B. F. Goodrich Company, New York, N.Y.

Filed June 14, 1971, Ser. No. 153,095

Int. Cl. C07c *5/28*

U.S. Cl. 260—666 PY **6 Claims**

5-Vinylbicyclo[2.2.1]hept-2-enes heated in the presence of a titanium catalyst system are isomerized to 5-ethylidenebicyclo[2.2.1]hept-2-enes. The catalyst system of this invention comprises a titanium compound, an alkali metal, an aluminum halide and sodium cyclopentadiene. The catalyst system is highly efficient and capable of rapidly isomerizing 5-vinylbicyclo[2.2.1]hept-2-enes. 5-Ethylidenebicyclo[2.2.1]hept-2-enes are useful comonomers for polymerization with α-olefins such as ethylene and propylene.

3,683,039
PROCESS FOR THE ISOMERIZATION OF 5-VINYLBICYCLO (2.2.1) HEPT-2-ENES

Wolfgang Schneider, Brecksville, Ohio, assignor to The B. F. Goodrich Company, New York, N.Y.

Filed June 14, 1971, Ser. No. 153,100
Int. Cl. C07c 5/28
U.S. Cl. 260—666 PY 6 Claims

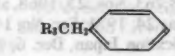
5-Vinylbicyclo[2.2.1]hept-2-enes heated in the presence of a titanium catalyst system are isomerized to 5-ethylidenebicyclo[2.2.1]hept-2-enes. The catalyst system of this invention comprises a titanium compound, an alkali metal, an aluminum halide and cyclopentadienyl thallium. The catalyst system is highly efficient and capable of rapidly isomerizing 5-vinylbicyclo[2.2.1]dhept-2-enes. 5-Ethylidenebicyclo[2.2.1]hept-2-enes are useful comonomers for polymerization with α-olefins such as ethylene and propylene.

3,683,040
CERTAIN BI- OR TRICYCLOALKYL METHYLBENZENES

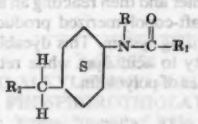
Richard N. Knowles, Hockessin, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. Nos. 574,499, Aug. 18, 1966, and Ser. No. 574,276, Aug. 18, 1966. This application April 20, 1967, Ser. No. 635,304
Int. Cl. C07c 15/12
U.S. Cl. 260—668 R 1 Claim

Compounds such as



wherein R_3 is bicycloalkyl (C_7 to C_{10}) or tricycloalkyl (C_{10} to C_{11}), useful as intermediates for making N-acylcyclohexylamines of the formula:



wherein

R is hydrogen, methyl or ethyl;

R_1 is hydrogen, or alkyl of 1 through 4 carbon atoms; and

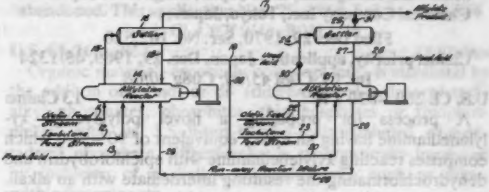
R_3 is straight chain or branched alkyl of 3 through 8 carbon atoms, cyclobutyl, cyclopentyl, cyclohexyl, cycloheptyl, cyclooctyl, cyclononyl useful as animal repellants are disclosed, bicycloalkyl, cycloalkylalkyl, or tricycloalkyl. Typical are phenyl-2-[2.2.1]-bicycloheptylmethane, 4-cyclobutylmethylbenzoic acid, 4'-cyclobutylmethylacetophenone, 4-cyclobutylmethylcyclohexane carboxylic acid, and 4-n-hexylcyclohexylamine.

3,683,041
ALKYLATION ENCOUNTERING ACIDITY RUN-AWAYS

Arthur R. Goldsby, Chappaqua, N.Y., assignor to Texaco Development Corporation, New York, N.Y.

Filed Dec. 31, 1969, Ser. No. 889,476
Int. Cl. C07c 3/54
U.S. Cl. 260—683.59 2 Claims

Run-away sulfuric acid of less than catalytic strength (88 percent), or the entire reaction mixture containing such acid, is charged to a normally operating alkylation reaction, and the acid is thus restored to alkylation strength. The alkyl sulfate

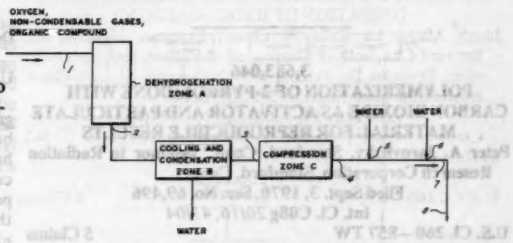


which would contaminate the alkylate product of a run-away acid is thus alkylated resulting in a sulfur-free alkylate.

3,683,042
REDUCING FOULING IN OXIDATIVE DEHYDROGENATION PROCESS

Rudolph C. Woerner, 6438 Brookside, Houston, Tex.

Filed Nov. 14, 1968, Ser. No. 775,862
Int. Cl. C07c 5/18
U.S. Cl. 260—680 E 10 Claims



Reducing plugging of compressor discharge lines in oxidative dehydrogenation processes by maintaining high velocities in compressor discharge lines and optionally spraying water into the lines.

3,683,043
METHOD OF PREPARING ALKYLBENZENES

Marcello Ghirga, Via Grandi 5; Natale Bertolini, Via Amedeo 54, and Lucio Di Fiore, Via Piermarini 10, all of Milan, Italy

Filed Feb. 2, 1971, Ser. No. 112,034
Claims priority, application Italy, Feb. 4, 1970, 20197 A/70
Int. Cl. C07c 3/56
U.S. Cl. 260—671 B 3 Claims

In the production of linear alkylbenzenes by continuous alkylation of benzene with linear chloroparaffins $C_9 - C_{15}$ in the presence of aluminum trichloride, the spent catalytic complex has added thereto aluminum trichloride to provide a total amount of 30–35 wt. percent bound and unbound $AlCl_3$ therein, and is activated by adding thereto a specific amount of hydrogen chloride and heating for at least one hour at 30°–60° C. The complex activated in this manner is used as catalyst in the alkylation stage. Odorless, high-grade linear alkylbenzenes are obtained.

3,683,044

HEAT-CURABLE COMPOSITION COMPRISING POLYGLYCIDYL XYLYLENE-DIAMINE AND PROCESS FOR PREPARATION OF POLYGLYCIDYL XYLYLENEDIAMINE

Ching Yun Huang, Osaka; Kazuo Ueno, Kyoto, and Keizo Masawaki, Amagasaki, all of Japan, assignors to Japan Gas-Chemical Company Inc., Tokyo, Japan

Filed Dec. 29, 1970, Ser. No. 102,520
Claims priority, application Japan, Dec. 29, 1969, 45/1324
Int. Cl. C08f 45/00; C08g 30/08
U.S. Cl. 260—830 TW 13 Claims

A process for preparing a novel polyglycidyl xylylenediamine having an epoxy equivalent of 90 – 200 which comprises reacting xylylenediamine with epichlorohydrin and dehydrochlorinating the resulting interdediate with an alkali. A heat-curable resinous composition comprising said polyglycidyl xylylenediamine exhibits a low viscosity suitable for casting and adhesive, and a cured product therefrom has a high heat distortion temperature.

3,683,045

PHENOTHIAZINE STABILIZED VINYL ESTER RESINS

Walton Leon Baldwin, 116 Mulberry, Lake Jackson, Tex.

Filed Dec. 2, 1970, Ser. No. 94,582
Int. Cl. C08g 45/04
U.S. Cl. 260—837 R 7 Claims

Phenothiazine has been found to be an effective gellation inhibitor for thermosettable vinyl ester resins without adversely affecting the catalyzed gel times and cure times as measured by the SPI exotherm test.

3,683,046

POLYMERIZATION OF 2-PYRROLIDONE WITH CARBON DIOXIDE AS ACTIVATOR AND PARTICULATE MATERIAL FOR REPRODUCIBLE RESULTS

Peter A. Jarovitzky, Stamford, Conn., assignor to Radiation Research Corporation, Stamford, Conn.

Filed Sept. 3, 1970, Ser. No. 69,496
Int. Cl. C08g 20/16, 41/04
U.S. Cl. 260—857 TW 5 Claims

2-Pyrrolidone is polymerized to a high molecular weight polymer in the presence of an alkaline polymerization catalyst, CO_2, and a particulate material that was added to the reaction mass.

3,683,047

PRODUCTION OF BLOCK COPOLYMERS

Makoto Honda, 19-3, 2-chome, Sakura-zutsumi, Musashinoshi, Tokyo, and Kenichiro Sato, 19-3, 2-chome, Shimura, Itabushi-ku, Tokyo, both of Japan

Continuation-in-part of Ser. No. 643,864, June 6, 1967, abandoned. This application Nov. 20, 1969, Ser. No. 878,309
Claims priority, application Japan, June 22, 1966, 41/40044
Int. Cl. C08g 41/04
U.S. Cl. 260—857 TW 6 Claims

A process for producing new type block-copolymers by polycondensation at a temperature below 250°C. of at least two different prepolymers selected from the group consisting of the four prepolyamides represented by the following general formulas:

i. H_2N ⟨A⟩ NH_2
ii. H_2N ⟨B⟩ NH_2
iii. HOOC ⟨A⟩ COOH
iv. HOOC ⟨B⟩ COOH,

wherein A and B are different and represent polyamides having a molecular weight of from 1,000 to 4,000.

3,683,048

MONOFUNCTIONALLY-BLOCKED TRIS(2-HYDROXYALKYL)ISOCYANURATES AND POLYESTERS THEREOF

John M. Kolyer, Convent, and Albert A. Kveglis, Pine Brook, both of N.J., assignors to Allied Chemical Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 725,163, April 29, 1968, abandoned. This application Nov. 13, 1970, Ser. No. 89,532
Int. Cl. C08f 21/00, 21/02; C08g 17/10
U.S. Cl. 260—868 15 Claims

Monofunctionally-blocked tris(2-hydroxyalkyl)isocyanurates, made by reactionwith equimolar amount of a monocarboxylic acid, are statistically difunctional alcohols useful for making polyesters. Use of an α-ethylenically unsaturated polycarboxylic acid or an α-ethylenically unsaturated monocarboxylic acid blocking agent in conjunction with a cross-linking monomer gives casting resins which are heat resistant, self-extinguishing, weather resistant, and color stable.

3,683,049

PROCESS FOR PRODUCING DYEABLE POLYOLEFIN

Kanji Kaku, 21 Otsumocho; Mitsuo Asaba, 60 Hase Kamakurashi; Yasaka Gondo, 21 Otsutomocho Kanazawaku Yokohamashi; Atsuyuki Kachi, 21 Otsutomocho Kanazawaku Yokohamashi, all of Kanagawaken, and Satoshi Matsumoto, 6133-3 Goikawagishi Ichiharashi, Chibaken, all of Japan

Division of Ser. No. 778,763, Nov. 25, 1968, abandoned. This application May 24, 1971, Ser. No. 146,518
Claims priority, application Japan, Dec. 6, 1967, 42/78323; Dec. 6, 1967, 42/78324
Int. Cl. C08f 29/12; D06p 3/06; C08f 27/00
U.S. Cl. 260—876 R 6 Claims

Process for producing dyeable polyolefin which comprises graft-copolymerizing a vinyl monomer containing at least one basic nitrogen atom with a polyolefin to an extent more than half the amount to be included in the final graft-copolymerized polymer and then reacting an acidic vinyl compound with thus graft-copolymerized product, preferably in the graft-copolymerizing system. This dyeable polyolefin has excellent dye affinity to acid dyes while retaining excellent mechanical properties of polyolefin.

3,683,050

PROCESS FOR PREPARING IMPROVED PLASTIC COMPOSITIONS AND THE RESULTING PRODUCTS

Curtis L. Meredith, Baton Rouge, La.; Robert E. Barrett, Baton Rouge, La., and William A. Bishop, Baton Rouge, La., assignors to Copolymer Rubber & Chemical Corporation, Baton Rouge, La.

Continuation-in-part of Ser. No. 709,902, March 4, 1968, Pat. No. 3,538,190, which is a continuation-in-part of Ser. No. 626,930, March 30, 1967, Pat. No. 3,538,191. This application April 24, 1969, Ser. No. 819,127
Int. Cl. C08f 37/18, 41/12
U.S. Cl. 260—876 R 9 Claims

Plastics having improved impact resistance are prepared by interpolymerizing a mixture including a rubbery interpolymer of ethylene, at least one alpha monoolefin having 3–16 carbon atoms and an alkylidene norbornene, preferably 5-ethylidene-2-norbornene and an alkenyl aromatic monomer such as styrene, a vinyl or vinylidene halide such as vinyl chloride, an acrylic monomer such as acrylonitrile, and mixtures thereof in an organic solvent for the rubbery polymer and in the presence of a free radical catalyst.

3,683,051
COPOLYMERS OF VINYL CHLORIDE AND LOWER OLEFINS

Jean Chatelain, Lyon, France, assignor to Produits Chimiques Pechiney Saint-Gabain, Nevilly-sur-Sein, France

Filed Feb. 25, 1969, Ser. No. 802,230

Claims priority, application France, March 5, 1968, 68142369

Int. Cl. C08f *15/00*

U.S. Cl. 260—878 R **7 Claims**

Vinyl chloride is first polymerized in mass with high turbulent agitation to from 7 to 15 percent completion forming suspended polymer seeds in the liquid monomer, the suspension is added to a mixture of liquid vinyl chloride and low molecular weight olefin, and polymerization in mass is continued to completion, producing grains having a seed of the homopolymer of vinyl chloride surrounded by the copolymer. The first stage with high turbulence is carried out under warm conditions of usually about 50° to 60° C. and the second stage is carried out at from about −40° to +80° C. with mild agitation. The product is concentrated in a narrow range of particle sizes, e.g. 80 percent between 100 and 250 microns.

3,683,052
POLYMERIC COMPOSITIONS

Gerald P. Coffey, Cleveland Heights; Lawrence E. Ball, Cuyahoga Falls, and June T. Duke, Chagrin Falls, all of Ohio, assignors to The Standard Oil Company, Cleveland, Ohio

Continuation-in-part of Ser. No. 819,125, April 24, 1969, abandoned, which is a continuation-in-part of Ser. No. 764,334, Oct. 1, 1968, abandoned. This application Aug. 19, 1970, Ser. No. 65,305

Int. Cl. C08f *15/40, 19/08*

U.S. Cl. 260—879 **10 Claims**

Impact-resistant polymers having low permeability to gases and vapors are prepared by polymerizing acrylonitrile with an alpha-olefin such as isobutylene, at least one member selected from the group consisting of an acrylic ester, a methacrylic ester, methacrylonitrile, an acrylamide, and a vinyl ester, and optionally another vinyl monomer component such as a vinyl aromatic monomer in an aqueous medium in the presence of a diene rubber.

3,683,053
O-ALKYL-O-ALKYLPHENYL-S-ALKOXYETHYL-PHOSPHOROTHIOLATES

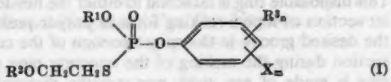
Shigeo Kishino; Yasuo Yamada; Akio Kudamatsu; Shozo Sumi, all of Tokyo, and Kozo Shiokawa, Kanagawa, all of Japan, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

Filed Sept. 14, 1970, Ser. No. 72,114

Int. Cl. C07f *9/12*; A01n *9/36*

U.S. Cl. 260—950 **11 Claims**

O-alkyl-O-alkylphenyl-S-alkoxyethyl-phosphorothiolates of the formula



(I)

in which

R^1, R^2 and R^3 are lower alkyl radicals,

X is halogen,

m is 0 to 3, and

n is 1 or 2,

which possess insecticidal and fungicidal properties, compositions containing such phosphorothiolates and the method of combating insects and fungi using such phosphorothiolates.

3,683,054
S[-3,5(OR 6)-DIHYDROCARBYL-4-HYDROXY-PHENYL] PHOSPHATES OR PHOSPHITES

John C. Wollensak, Royal Oak, Mich., and Edward F. Zaweski, Pleasant Ridge, Mich., assignors to Ethyl Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 746,760, July 23, 1968, abandoned. This application Nov. 29, 1968, Ser. No. 780,266

Int. Cl. C07f *9/18*; B01j *1/16*

U.S. Cl. 260—953 **12 Claims**

Organic material, especially polypropylene, is stabilized by the additon of mono- or di- (dihydrocarbyl-hydroxyphenyl) alkyl phosphates, phosphites, thiophosphates or thiophosphites, such as 3,5-di-tert-butyl-4-hydroxyphenyl di-n-octadecyl phosphate. Effectiveness is synergistically improved by inclusion of a dialkyl thiodialkanoate such as dilaurylthiodipropionate.

3,683,055
Patent Not Issued For This Number

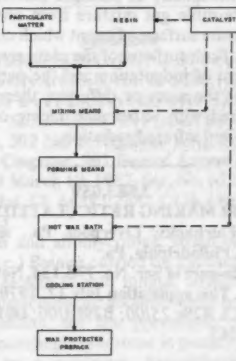
3,683,056
METHOD FOR MAKING A PREPACKED SAND CONTROL LINER FOR USE IN OIL WELLS

Harry Brandt, 3309 Middle Golf Drive, El Macero, Calif., and Barney R. Treadway, 5912 Durbridge Drive, New Orleans, La.

Continuation-in-part of Ser. No. 376,638, June 22, 1964, abandoned. This application March 27, 1969, Ser. No. 811,140

Int. Cl. E21b *43/08*

U.S. Cl. 264—112 **16 Claims**



A method for curing mixtures of particulate matter and a bonding agent in hot liquid baths to form the permeable section of a prepacked sand control liner for use in oil wells.

3,683,057
PROCESS FOR THE PRODUCTION OF COMPRESSED SHAPES OF UREA

Kenzo Fujii, Kamakura; Kazumichi Kanai, Fugisawa; Shigeru Inoue, Kamakura; Kiyoshi Matsuo, Kamakura, and Masami Asakura, Kamakura, all of Japan, assignors to Mitsui Toatsu Chemicals, Incorporated, Tokyo, Japan

Filed Jan. 22, 1971, Ser. No. 109,021

Claims priority, application Japan, Jan. 22, 1970, 45/5382; Sept. 8, 1970, 45/78187

Int. Cl. B01j *2/00*

U.S. Cl. 264—140 **10 Claims**

Crystalline urea is compressed at a temperature of from 50° to 132° C. and below the melting point of the urea and at a pressure of at least 2 kg./cm² to form urea shapes. In one em-

bodiment, molten urea is added in an amount of from 5 to 50 percent by weight of the crystalline urea.

3,683,058

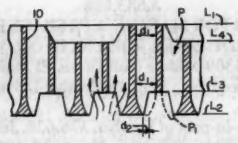
INFRARED BURNERS AND HIGH EFFICIENCY RADIANT PLATES

Maurice Partiot, 12 Rue du Plateau, Saint-Antoine, le Chesnay, France

Continuation of Ser. No. 742,980, June 27, 1968, which is a continuation-in-part of Ser. No. 36,767, June 17, 1960, Pat. No. 3,179,155, and a continuation-in-part of Ser. No. 240,704, Nov. 28, 1962, Pat. No. 3,179,157, and a continuation-in-part of Ser. No. 440,465, June 17, 1960, and a continuation-in-part of Ser. No. 549,114, Feb. 2, 1965, and a continuation-in-part of Ser. No. 549,121, Dec. 31, 1963. This application Aug. 25, 1969, Ser. No. 853,623

Int. Cl. B28b *1/48*

U.S. Cl. 264—156 **1 Claim**



The disclosure relates to radiant ceramic plates for gas burners having a multiplicity of passages therethrough for conducting a combustible gas mixture from one surface of the plate to an opposite surface adjacent which combustion of the gas takes place. Both surfaces of the plate are provided with a repetitive pattern of indentation and the patterns of the two surfaces may be the same or different, thereby enabling the plates to be used with either side facing outwardly in the direction of desired infrared radiation.

3,683,059

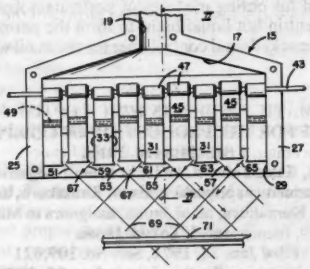
METHOD FOR MAKING RETICULATED STRUCTURES

Theodore H. Fairbanks, Liverpool, Pa., assignor to FMC Corporation, Philadelphia, Pa.

Continuation-in-part of Ser. No. 778,134, Nov. 22, 1968, Pat. No. 3,577,587. This application July 17, 1970, Ser. No. 55,835

Int. Cl. B29c *25/00;* **B29f** *3/00;* **D01d** *5/20*

U.S. Cl. 264—167 **4 Claims**



Method for making reticulated structures by periodically contacting adjacent streams of a series of generally like streams of flowable material as they are extruded along sinuous paths, and thereafter setting the extruded under the same pressure streams.

3,683,060

METHOD OF PREPARING BIAXIALLY ORIENTED POLYETHYLENE 2,6-NAPHTHALATE FILM

Takashi Tanabe, 4100-8, Isobe, Sagamihara-shi, Kanagawa-ken; Hiroshi Aoiki, 2-20, 2-201, Nakamchi, Koganei-shi, Tokyo; Hitoshi Murakami, 6-16-25, Seishin, and Fujio Matsumoto, 2-8-11, Koyama, both of Sagamihara-shi, Kanagawa-ken, Japan

Filed June 8, 1970, Ser. No. 44,588

Claims priority, application Japan, June 13, 1969, 44/46574

Int. Cl. B29d *7/22, 7/24;* **C08g** *17/00*

U.S. Cl. 264—289 **4 Claims**

A biaxially oriented polyethylene 2,6-naphthalate film having superior physical properties in the machine direction such as tensile strength and Young's modulus, particularly useful as a base of magnetic recording tape, is prepared by stretching an undrawn film of polyethylene 2,6-naphthalate consisting essentially of ethylene 2,6-naphthalate units and having an intrinsic viscosity of at least 0.35, first in the machine direction to 3.5–5 times the original length at a temperature ranging from 10°C. above the second order transition temperature of said polyethylene 2,6-naphthalate to 170°C., and then in the transverse direction at a draw ratio 50–90 percent of that of the machine direction stretching at a temperature ranging from 3°C. above said second order transition temperature to 160°C. and satisfying the following relationship

$$25X - 770n + 1200 \quad T \quad 22X - 400n + 700,$$

wherein T is the drawing temperature (°C.) when stretching the film in the transverse direction, X is the draw ratio when stretching the film in the transverse direction, and n is the refractive index in the thickness direction of the film after stretching in the machine direction.

3,683,061

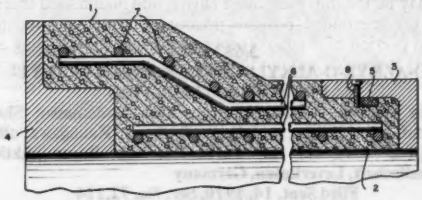
PIPE GROOVE FORMATION

Robert H. Gates, Columbus, Ohio, assignor to Martin Marietta Corporation, New York, N.Y.

Filed Oct. 9, 1969, Ser. No. 865,024

Int. Cl. B28b *7/20, 7/34, 21/30*

U.S. Cl. 264—317 **17 Claims**



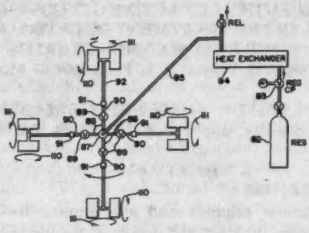
Non-metallic, disposable rings are employed in the forming of a groove in the spigot portion of concrete pipe sections. This disposable ring is attached to either the header or the pallet section of a pipe-making form in proper position to form the desired groove in the spigot portion of the concrete pipe section during the making of the concrete pipe section. The ring is made of any rigid, non-metallic disposable material capable of resisting heat, water, alkali and steam. The disposable ring may be left in place when the header and pallet sections of the form are removed from the partially cured pipe. The ring may be removed from the pipe section some time after the pipe section has properly cured, preferably at the time the pipe section is to be used. The possibility of damage to the groove may thus be reduced or eliminated, and the groove may be kept free of dirt and other foreign matter until the pipe section is actually employed during the installation of a line of concrete pipe.

3,683,062

ROTATIONAL CASTING METHOD

Elmer J. von der Heide, Hudson, Ohio, assignor to Essex International, Inc., Fort Wayne, Ind.

Division of Ser. No. 720,700, April 11, 1968, Pat. No. 3,550,206. This application Aug. 20, 1970, Ser. No. 65,638
Int. Cl. B29c 5/04
U.S. Cl. 264—310 11 Claims



A method for rotationally molding or casting thermoplastic or thermosetting resinous compositions. The machine includes a rotatable turret on which at least one mold-rotating spindle and a pair of motor drives therefor are mounted as a removable unit with the spindle projecting radially outwardly from the turret. The spindle includes means for removably mounting a pair of perpendicular axes at the same or different speeds as determined by the speeds of the motor drives, which are independently variable. The turret has provision for mounting additional spindle and motor drive units thereon with equi-angular spacing of the spindles about the turret to satisfy varying output and/or process requirements. The machine further includes treating stations through which the molds on the spindle or spindles are successively indexed. The number, type, and location of the treating stations may be varied to suit a number of different molding processes. Inert gas may be fed into each mold cavity, and maintained therein at a predetermined positive pressure during any predetermined portion of the mold processing cycle after loading and closing the molds and until they are to be opened for removal of the molded or cast article. Separate ovens with independent temperature controls may be provided at successive stations. Cooling at a cooling station is two stage, first with a wet steam spray and second with a liquid coolant spray.

3,683,063

Patent Not Issued For This Number

3,683,064

Patent Not Issued For This Number

3,683,065

LIQUID DENTIFRICE

Frederick L. Lauster, Massillon, Ohio, assignor to Cameo, Inc., Toledo, Ohio

Filed Sept. 17, 1969, Ser. No. 858,854
Int. Cl. A61k 7/16
U.S. Cl. 424—57 1 Claim

A liquid dentifrice which cleans, whitens and restores the natural lustre of teeth and dentures, and contains ingredients which adsorb stains, food particles and bacteria, preventing their adherence to the enamel surfaces of natural or artificial teeth. It is characterized by the fact that it is in the form of a homogeneous solution and remains so over long periods, and contains a humectant in desired amounts, enabling the dentifrice to retain moisture when exposed to air, thereby preventing the dentifrice from hardening when so exposed.

3,683,066

TECHNETIUM 99M COLLOIDAL COMPOSITION

Ivan Ascanio, 5 Pineybranch Road, Cranbury; Thomas A. Haney, 23 Tall Oaks Road, East Brunswick, and Gerald A. Bruno, 115 Obre Place, Shrewsbury, all of N.J.

Filed Jan. 14, 1969, Ser. No. 791,173
Int. Cl. A61k 27/04
U.S. Cl. 424—1 6 Claims

Disclosed herein is a sterile nonpyrogenic composition and method for preparing Technetium 99*m* sulfur colloid containing a chelating agent utilized in the scanning of liver and other organs of the body.

3,683,067

METHOD OF CONTROLLING FUNGI WITH 2-ACETOXY BENZONITRILES

Adolph J. Deinet, Woodcliff Lake, N.J., assignor to Tenneco Chemicals, Inc.

Continuation-in-part of Ser. No. 791,484, Jan. 15, 1969, abandoned. This application June 26, 1970, Ser. No. 50,319
Int. Cl. A61l 13/00
U.S. Cl. 424—78 4 Claims

2-Acyloxybromobenzonitriles are used to protect surface-coating compositions from deterioration resulting from attack by fungi and other microorganisms.

3,683,068

COMPOSITIONS CONTAINING SCOPULARIOPSIS BREVICAULIS ON AN ALKALINE SUBSTRATE AND THE USE THEREOF IN THE CONTROL OF HEMORRHAGIC SYNDROME IN POULTRY

Joseph Forgacs, 302 North Highland Ave., Pearl River, N.Y., and Albert S. Cosgrove, 901 Bayard Avenue, Rehoboth, Del.

Filed March 10, 1967, Ser. No. 622,052
Int. Cl. A61k 27/00; C12k 1/00
U.S. Cl. 424—93 7 Claims

An innocuous and antimycotoxic strain of Scopulariopsis brevicaulis (Sacc.) Bainier carried on a substratum capable of supporting the growth of said fungus, advantageously mixed with a diluent, preferably an alkaline agent or one capable of developing alkalinity, for the prevention or control to a minimum of hemorrhagic syndrome in poultry; and preventing or controlling to a minimum, hemorrhagic syndrome in poultry by seeding litter in a substantially clean poultry house with said composition and permitting growth of the fungus.

3,683,069

ENZYMATIC PRODUCTS WHICH OPTIMIZE THE VISCOSITY OF MUCUSES AND THEIR APPLICATIONS

Michel Hooreman, 9 rue Marbeau, Paris, France

Filed Feb. 19, 1970, Ser. No. 12,595
Claims priority, application Great Britain, Feb. 21, 1971, 9,619/71
Int. Cl. A61k 19/00
U.S. Cl. 424—94 3 Claims

The invention provides proteolytic enzyme-containing compositions which, on administration, optimize the in vivo viscosity of the mucuses and which are characterized by bringing the magnitude of the in vitro viscosity to a value generally between those values obtained when mucus is subjected to identical treatments with trypsin and chymotrypsin; they are also characterized by being insensitive to trypsin inhibitors.

3,683,070

ANTIHYPERTENSIVE COMPOSITIONS

Yvonne Thuillier, Paris, France, assignor to Albert Rolland S.A., Paris, France

Continuation-in-part of Ser. No. 724,253, April 25, 1968, abandoned. This application Nov. 13, 1970, Ser. No. 89,469
Claims priority, application France, May 2, 1967, 20,359/67
Int. Cl. A61k *17/08*
U.S. Cl. 424—103 4 Claims

Antihypertensive fractions are obtained from kidneys by a triple extraction procedure with acetone at pH about 4, diethyl ether, and finally sec-butanol at pH about 5. A very active product having a prolonged effect is obtained.

3,683,071

PROCESS FOR PRODUCING SODIUM SALT OF LEVORIN

Valter Osvaldovich Kulbakh; Galina Vasilievna Kholodova, and Jury Fedorovich Sveshnikov, all of Leningrad, U.S.S.R., assignors to Leningradsky nauchno-issledovatelskr Institut Antibiotikov, Leningrad, U.S.S.R.

Filed Aug. 6, 1969, Ser. No. 848,094
Int. Cl. A61k *21/00*
U.S. Cl. 424—119 6 Claims

A process for producing the sodium salt of levorin wherein levorin suspended in a binary mixture acetone-water or a triple mixture acetone-methylene chloride-water is reacted with an aqueous solution of sodium hydroxide, the resulting salt being subsequently precipitated with acetone.

3,683,072

METHOBOTTROMYCIN AND PROCESS FOR TREATING POULTRY INFECTIONS

William J. Miller, 19 Larsen Road, Somerset, N.J.; Frank J. Wolf, 38 Genesse Trail, Westfield, N.J., and Louis Chaiet, 33 Cypress Terrace, Springfield, N.J.

Continuation of Ser. No. 480,041, Aug. 16, 1965, abandoned. This application March 14, 1968, Ser. No. 713,258
Int. Cl. A61k *21/00*
U.S. Cl. 424—117 7 Claims

This invention relates to a new antibiotic agent amethobottromycin, its salts and their use as an antibiotic agent in the treatment of chronic respiratory disease in chickens and infectious sinsitis in turkeys.

3,683,073

METHOBOTTROMYCIN, PROCESS FOR PREPARING AND USING SAME

Frank J. Wolf, Westfield; William J. Miller, Somerset, and Louis Chaiet, Springfield, all of N.J., assignors to Merck & Co., Inc., Rahway, N.J.

Continuation of Ser. No. 480,039, Aug. 16, 1965, abandoned. This application March 14, 1968, Ser. No. 713,255
Int. Cl. A61k *21/00*
U.S. Cl. 424—117 11 Claims

This invention relates to a new antibiotic agent, methobottromycin, its salts, the process of preparing same, and their use as an antibiotic agent in the treatment of chronic respiratory disease in chickens and infectious sinusitis in turkeys.

3,683,074

ANTIBIOTIC SELENOMYCIN

Carolina Coronelli, 4, Piazza Novelli, Milan, and Josef Thiemann, 14 V. le Vittorio Veneto, Appiano Gentile, Come, both of Italy

Filed June 10, 1970, Ser. No. 45,227
Int. Cl. A61k *21/00*
U.S. Cl. 424—119 4 Claims

An antibiotic substance, selenomycin, is produced by cultivation of *Streptosporangium brasiliense* n. sp. ATCC 21,393 and can be isolated from the fermentation medium by extraction. The antibiotic is active against various Gram positive bacteria.

3,683,075

Patent Not Issued For This Number

3,683,076

PHARMACEUTICALLY ACTIVE GLUCOSAMINE SALTS USEFUL IN THE TREATMENT OF OSTEOARTHRITIS AND RHEUMATOID ARTHRITIS

Luigi Rovati, Via Valosa 2, S. Fruttuoso di Monza (Milan), Italy

Filed Oct. 14, 1969, Ser. No. 866,371
Claims priority, application Italy, Oct. 26, 1968, 53645 A/68
Int. Cl. A61k *27/00*
U.S. Cl. 424—180 11 Claims

Glucosamine sulphate and glucosamine hydroiodide are prepared pure by described processes for use in the treatment of arthritic disease.

3,683,077

Patent Not Issued For This Number

3,683,078

TRANSPARENT TOXICANT COMPOSITIONS

Joseph Benjamin Haus, Clifton, N.J., assignor to CPC International Inc.

Filed Oct. 13, 1969, Ser. No. 866,034
Int. Cl. A01n *9/08, 17/10*
U.S. Cl. 424—190 28 Claims

The emulsifier compositions containing an alkyl phenol/alkylene oxide condensation product, or ether thereof, a sulfonate salt, and an alcohol/alkylene oxide condensation product, are useful in the preparation of toxicant concentrates which can in turn be used to prepare transparent toxicant emulsions.

3,683,079

Patent Not Issued For This Number

3,683,080

COMPOSITIONS FOR INHIBITING ANOMALOUS DEPOSITION AND MOBILIZATION OF CALCIUM PHOSPHATE IN ANIMAL TISSUE

Marion D. Francis, Springfield Township, Hamilton County, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

Continuation of Ser. No. 775,203, Nov. 12, 1968, abandoned, which is a continuation-in-part of Ser. No. 717,995, April 1, 1968, abandoned, which is a continuation-in-part of Ser. No. 689,290, Dec. 11, 1967, abandoned. This application Aug. 28, 1970, Ser. No. 68,029
Int. Cl. A61k *27/00*
U.S. Cl. 424—204 51 Claims

Compositions for inhibiting anomalous deposition and mobilization of calcium phosphates in animal tissue, comprising an effective amount of certain polyphosphonates as herein defined, and a pharmaceutical carrier; and a method for treating or preventing conditions involving pathological calcification and hard tissue demineralization in an animal comprising administering to such animal said compositions.

3,683,081

SYNERGISTIC FUNGICIDE COMPOSITION CONTAINING PHOSPHORODITHIOLATE DERIVATIVES

Yasuo Yamada, Tokyo, Japan, assignor to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

Filed July 1, 1970, Ser. No. 51,713
Claims priority, application Japan, July 10, 1969, 44/54225
Int. Cl. A01n *9/36*
U.S. Cl. 424—225 7 Claims

Synergistic combination of S-methyl-S-(4-chlorophenyl) phosphorodithiolate and O-alkyl-S,S-diphenyl phosphorodithiolates which possesses outstanding fungicidal properties.

3,683,082

N-ACETYL-N-(CYCLOPROPYL-4-PYRIMIDINYL)-SULPHANILAMIDES AS ANTIBACTERIAL AGENTS

Markus Zimmermann, Riehen, Switzerland, assignor to Geigy Chemical Corporation, Ardsley, N.Y.

Division of Ser. No. 662,901, March 14, 1967, Pat. No. 3,528,967. This application Feb. 9, 1970, Ser. No. 14,704
Int. Cl. A61k *27/00*
U.S. Cl. 424—229 6 Claims

N^1-Acetyl-N^1-(4-pyrimidinyl)-sulphanilamides substituted by a cyclopropyl group in 2-, 5- or 6-position, which are antibacterial agents against gram-positive bacteria such as staphylococci, streptococci, pneumonococci and against gram-negative bacteria such as salmonella, oscherichia and klebsiella strains; pharmaceutical compositions containing the aforesaid pyrimidines as antibacterial ingredients, and a method of treating diseases caused by such bacteria, by administration of such pyrimidines or pharmaceutical compositions containing them.

ERRATUM

For Class 424—244 see:
Patent No. 3,683,348

3,683,083

ANALGETIC COMPOSITION AND METHOD EMPLOYING 1-MORPHOLINOMETHYL-5-ETHYL-5-PHENYL BABITURIC ACID

Julius A. Vida, Boston, Mass., assignor to The Kendall Company, Walpole, Mass.

Filed Nov. 9, 1970, Ser. No. 88,195
Int. Cl. A61k *27/00*
U.S. Cl. 424—248 2 Claims

The use of 1-morpholinomethyl-5-ethyl-5-phenyl barbituric acid as an analgetic agent is described.

3,683,084

BASICALLY SUBSTITUTED HETEROCYCLES AS ANTI-EMETICS

Jean Schmutz, Pourtalesstrasse 36, Muri; Fritz Hunziker, Wabernstrasse 53, Berne, and Franz Martin Kunzle, Landoltstrasse 11, Berne, all of Switzerland

Continuation-in-part of Ser. No. 797,281, Feb. 6, 1969, Pat. No. 3,546,226, which is a continuation-in-part of Ser. Nos. 371,123, May 28, 1964, abandoned, and Ser. No. 712,956, March 14, 1968, abandoned. This application July 16, 1970, Ser. No. 55,602
Int. Cl. A61k *27/00*
U.S. Cl. 424—250 3 Claims

Certain 11-basically substituted dibenz[b,f][1,4]oxazepines are useful as anti-emetics.

3,683,085

SECONDARYAMINO PYRIDAZINES

William J. Houlihan, and Robert E. Manning, both of Mountain Lakes, N.J., assignors to Sandoz-Wander, Inc., Hanover, N.J.

Continuation-in-part of Ser. No. 860,059, Sept. 22, 1969, Pat. No. 3,579,517, which is a continuation-in-part of Ser. No. 849,151, Aug. 11, 1969, abandoned, which is a continuation-in-part of Ser. No. 671,962, Oct. 2, 1967. This application Jan. 14, 1971, Ser. No. 106,605
Int. Cl. A61k *27/00*
U.S. Cl. 424—250 13 Claims

Secondaryamino pyridazines and hydrazine substituted secondary-amino pyridazines, e.g., 3,6-dichloro-4-diallylaminopyridazine and 3-chloro-4-dimethylamino-6-hydrazinopyridazine, are prepared from 3,4,6-trihalopyridazines and are useful as central nervous system stimulants, particularly anti-depressants.

3,683,086

DERIVATIVES OF ACETIC ACID FOR THE ALLEVIATION OF HYPERLIPEMIA

Rudolf G. Griot, Florham Park, N.J., assignor to Sandoz Wander, Inc.

Division of Ser. No. 653,350, July 14, 1967, Pat. No. 3,546,229. This application July 13, 1970, Ser. No. 61,032
Int. Cl. A61k *27/00*
U.S. Cl. 424—267 12 Claims

The compounds are of the class of bis-(4-trifluoromethylphenoxy) acetic acid compounds, e.g., bis-(4-trifluoromethylphenoxy)acetic acid 1-methyl-4-piperidyl ester. The compounds are useful as hypocholesteremic/hypolipemic agents.

3,683,087

FUNGICIDAL COMPOSITION CONTAINING 2-ISOXAZOLIN-5-ONE AND METHOD OF USING THE SAME

Michael Joseph Augustine Geoghegan; John Angus William Turner; Peter Frank Hilary Freeman, all of Bracknell, England, and Lindsay Anderson Summers, New Castle, Australia, assignors to Imperial Chemical Industries Limited, London, England

Division of Ser. No. 433,162, Feb. 16, 1965, Pat. No. 3,370,064, which is a continuation-in-part of Ser. No. 147,741, Oct. 16, 1961, abandoned. This application April 21, 1967, Ser. No. 647,576
Int. Cl. A01n *9/22, 9/28*
U.S. Cl. 424—272 20 Claims

The present invention is directed to the novel fungicidal compositions containing 2-isoxazolin-5 and one method using the same.

3,683,088

2H-4.9-ETHANOBENZISOINDOLONES AND DERIVATIVES THEREOF AS PHARMACEUTICAL

Walter A. Gregory, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 763,029, Sept. 26, 1968, Pat. No. 3,584,009. This application Nov. 19, 1970, Ser. No. 91,219
Int. Cl. A61u *27/00*
U.S. Cl. 424—274 10 Claims

This invention relates to the use and pharmaceutical compositions of 2H-4,9-ethanobenzisoindolones, related compounds, and salts thereof for effecting analgesia.

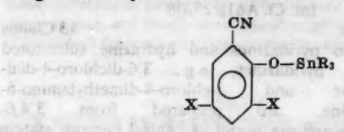
3,683,089

METHODS OF CONTROLLING FUNGI AND INSECTS WITH ORGANOTIN NITRILES

Adolph J. Deinet, Woodcliff Lake, N.J., assignor to Tenneco Chemicals, Inc.

Division of Ser. No. 800,741, Feb. 19, 1969, Pat. No. 3,560,540. This application May 11, 1970, Ser. No. 36,381
Int. Cl. A01n 9/00; B21b 19/04; C09d 3/64
U.S. Cl. 424—288 4 Claims

Organotin compounds that have the structural formula



wherein each R represents an alkyl group having from four to eight carbon atoms or a phenyl group; one of the X substituents represents halogen; and the other X substituent represents hydrogen or halogen are effective in the control of the growth of undesirable organisms.

3,683,090

METHODS OF REPELLING RODENTS USING TETRAVALENT ORGANO-LEAD COMPOUNDS

Malcolm C. Henry, Old Littleton Road, Harvard, Mass., and Adolf W. Krebs, 24 Albert-Ueberlestrasse, Heidelberg, Germany

Continuation-in-part of Ser. No. 634,111, April 27, 1967, abandoned, which is a division of Ser. No. 269,771, April 1, 1963, Pat. No. 3,322,779. This application June 15, 1970, Ser. No. 46,534
Int. Cl. A01n 9/00
U.S. Cl. 424—293 19 Claims

Rodents can be effectively repelled from materials subject to rodent attack by treating the materials with certain organo-lead compounds wherein the lead is generally in the tetravalent state.

3,683,091

CERTAIN PHENANTHRENE COMPOUNDS FOR TREATMENT OF ACNE

Wataru Nagata, 7-go, 6-ban, Kawahigashi-cho, Nishinomiya-shi; Tadao Terasawa, 765, Tonda-cho, Takatsuki-shi, and Tsutomu Sugasawa, 1327, Uozaki-cho, Higashinada-ku, Kobe-shi, Japan

Filed Nov. 13, 1967, Ser. No. 682,507
Int. Cl. A61k 27/00
U.S. Cl. 424—331 14 Claims

Phenanthrene compounds, specifically di-7-hydroxy or methyl-2,3,4,4a,9,10-hexahydrophenanthren-2-one and 4a-alkyl derivatives, hydrogenated derivatives, functional derivatives and optically active isomers thereof are useful as specific anti-acne agents.

3,683,092

METHOD OF ANESTHESIA

Bernard M. Regan, and John C. Longstreet, both of Chicago, Ill., assignors to Baxter Laboratories, Inc., Morton Grove, Ill.

Continuation-in-part of Ser. No. 771,365, Oct. 28, 1968, abandoned. This application July 31, 1970, Ser. No. 60,130
Int. Cl. A61k 13/00
U.S. Cl. 424—342 3 Claims

The method of inducing anesthesia by administering an anesthetically effective amount of the compound fluoromethyl 1,1,1,3,3,3-hexafluoro-2-propyl ether.

3,683,093

FURNACES FOR HEATING GLASS

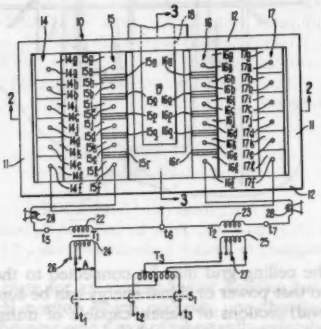
Philip Anthony Maunsell Gell, Southbridge, and Thomas Hugill Waterwort, Danesford, near Bridgenorth, both of England, assignors to Element Limited, London, England

Filed Dec. 16, 1970, Ser. No. 98,838

Claims priority, application Great Britain, Dec. 20, 1969, 62,170/69

Int. Cl. C03 *5/02*

U.S. Cl. 13—6 23 Claims



The invention provides a glass melting furnace in which glass is heated in several parallel adjacent zones by passage of glass between rows of electrodes situated at and defining the lateral boundaries of the zones. The bottom wall of the furnace chamber is formed with a network of channels for withdrawing glass from the lower part of the furnace towards an outlet. The electrode rows are connected to output terminals of an alternating current supply circuit which is fed from a three-phase alternating current supply source and has a transformer means for distributing the electrical load preferably substantially equally to the phases of the polyphase source.

3,683,094

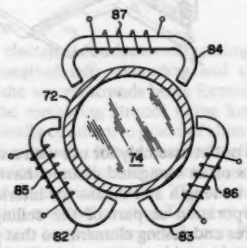
ARC POSITIONING SYSTEM FOR ROTATING ELECTRODE WHEEL ARC FURNACE

Max P. Schlienger, 19 Rollingwood Dr., San Rafael, Calif.

Filed Feb. 18, 1971, Ser. No. 116,427

Int. Cl. H05b *7/08*

U.S. Cl. 13—9 5 Claims



An arc furnace having a rotating electrode wheel that is rotated in a direction opposite from the direction of arc rotation caused by the magnetic field produced by the arc discharge. In this manner, the electrode wheel and arc will rotate in opposite directions to insure that the arc will originate from continually changing regions on the electrode wheel. According to a second embodiment, an electromagnet is disposed around the crucible and may be suitably energized to either produce stationery positioning of the arc with respect to the melt or counter-rotation of the arc with respect to the electrode wheel. In a third embodiment, a plurality of electromagnets are disposed around the crucible, the electromagnets being selectively energized to cause, due to magnetic repulsion, the arc to originate, under control, from varying regions of the melt.

3,683,095

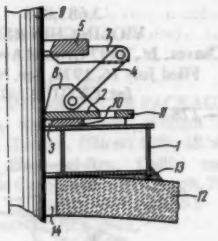
PACKING OF ELECTRODES IN AN ELECTRIC ARC FURNACE

Valery Vasilievich Salmin, ulitsa Zorge, 95, kv. 69, and Ivan Petrovich Nechaev, ulitsa Sibiryakov-Gvardeitsev, 22, kv. 35, both of Novosibirsk, U.S.S.R.

Filed July 14, 1971, Ser. No. 162,423

Int. Cl. H05b *7/10*

U.S. Cl. 13—17 2 Claims



An electrode sealing packing of an electric arc furnace is characterized in that it comprises at least two rows of movable packing segments radially pressed against the electrode by a tightening device and disposed one above another on a water-cooled box mounted on a furnace roof in the zone of an electrode opening; said tightening device is made in the form of a weight ring with tightening rods whose one end is articulated with the weight ring and the other with the packing segments ensuring the clamping of the segments to the electrode on account of the weight of the ring with the lateral edges of a packing segment of the lower row being parallel to the axis of motion of the segment and the spacings between the packing segments of the lower row accommodating plates similar in shape to that of the spacings, the plates being rigidly connected with each other forming a ring loosely resting on the water-cooled box.

3,683,096

ELECTRONIC PLAYER SYSTEM FOR ELECTRICALLY OPERATED MUSICAL INSTRUMENTS

Richard H. Peterson, 11748 Walnut Ridge Dr., Palos Park, Ill.; Robert A. Finch, 5804 Park Ave., Berkeley, Ill., and Bruce A. Oltman, 4925 Fairview Ave., Apt. 19, Downers Grove, Ill.

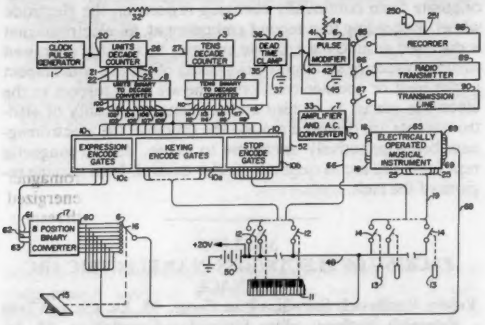
Filed March 15, 1971, Ser. No. 123,979

Int. Cl. G10f *1/00*

U.S. Cl. 84—115 5 Claims

The invention relates to a player mechanism for electrical musical instruments. Information representing the manipulation of the playing keys and controls of a musical instrument, such as an organ, is converted to electrical signals and

recorded on magnetic tape using a conventional cassette recorder. On playback, the recorded signal is "decoded" and



used to operate a series of semiconductor "switches" to "play" the same or a similar musical instrument.

3,683,097

Patent Not Issued For This Number

3,683,098

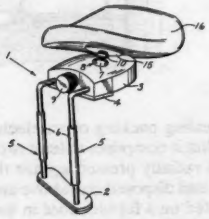
VIOLIN CHIN REST

Abraham Chavez, Jr., 4497 Grinnel Ave., Boulder, Colo.

Filed July 16, 1970, Ser. No. 55,449

Int. Cl. G10d *1/02*

U.S. Cl. 84—278 **6 Claims**



A violin chin rest, including means for mounting the chin rest on the base of a violin, has a swivelly mounted chin support portion mounted in a base member mounted on the violin mounting means. Means are provided for adjusting the position of the chin support member relative to the base member, and clamping means are provided for clamping the chin support member in a selected position relative to the base member.

3,683,099

Patent Not Issued For This Number

3,683,100

MODULAR WALL AND CEILING SYSTEM

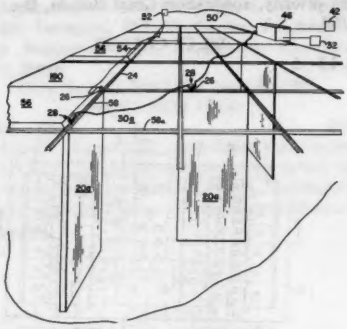
John V. Deal, 1237 Manet Dr., Sunnyvale, Calif., and Clive Nall, 258 Curlew Court, Foster City, Calif.

Filed Nov. 4, 1970, Ser. No. 86,758

Int. Cl. H02g *3/26*

U.S. Cl. 174—48 **31 Claims**

A suspended ceiling grid frame provides an upper support for prefabricated modular wall sections or panels that can be connected to the grid frame in different arrangements to provide the desired floor plan. An interfacing means on the top edges of the wall sections or panels secures them in place to the ceiling grid frame and allows the wall panels to be installed or removed rapidly with a minimum of labor. Electrical power lines and audio or video signal communication cables located



above the ceiling grid may be connected to the interfacing means so that power or signal energy can be supplied to particular wall sections or panels capable of transmitting both signal and power energy from their interfacing means to either predesignated or randomly located outlets on the sides of the wall sections.

3,683,101

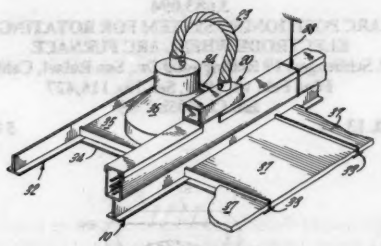
CEILING AND WALL STRUCTURES AND ELECTRICAL ENERGY DISTRIBUTING DEVICE FOR USE IN CONNECTION THEREWITH

Milton Liberman, 65 Seawana Rd., East Rockaway, N.Y.

Filed Sept. 9, 1970, Ser. No. 70,748

Int. Cl. H02g *3/29*

U.S. Cl. 174—49 **20 Claims**



A prewired outlet assembly for use with a suspended ceiling which consists of an elongated channel having spaced wired outlets along its length and means for interlocking it with T-bar for incorporation as part of the ceiling for support of lighting fixtures and ceiling elements so that prewired fixtures can be merely plugged in to the outlets. Provision is also made for the installation of additional prewired channels and vertical prewired columns for cooperation with the ceiling structure and receipt of energy from the outlet assemblies for providing floor outlets for electric appliances. The channels and columns may also include isolated compartments for communication and signalling purposes.

3,683,102

CLOSING PLATE FOR ELECTRIC METER HOUSING

Jack Moran, Muskogee; Boyd Steveson, Fort Gibson, and William A. Reynolds, Oklahoma City, all of Okla., assignors to M-R-S, Inc., Fort Gibson, Okla.

Filed Feb. 11, 1970, Ser. No. 10,439
Int. Cl. H05k 5/03
U.S. Cl. 174—50 5 Claims

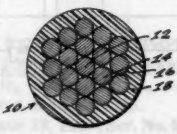
A closing plate for an electric meter housing has a transparent central portion which prevents unauthorized access into a meter housing, and a pair of rearwardly-extending cylindrical skirt portions which are located and dimensioned to engage with surfaces existant in different types of meter housings.

3,683,103

MULTI-STRAND ELECTRICAL CONDUCTOR

John J. Mancino, Charlotte, N.C., assignor to J & J Equity Company, Charlotte, N.C.

Filed July 7, 1971, Ser. No. 160,362
Int. Cl. H01b 5/08
U.S. Cl. 174—119 C 9 Claims



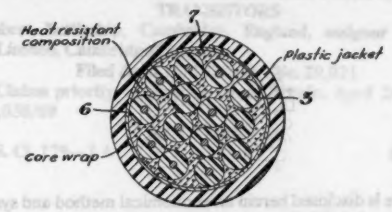
A light-weight electrical conductor comprising a plurality of at least seven longitudinally extending and closely wound strands, some of the wound strands being formed substantially of copper and the remaining strands being formed substantially of an electrically conductive grade of aluminum. Each of the strands in the conductor has an exterior surface coating of an identical electrically conductive material, preferably taken from the group of silver, nickel or tin. The conductor includes a suitable insulating material such as Teflon or the like which forms an outer cover layer for the conductor. Preferably, the conductor includes either seven or nineteen strands, the seven-strand conductor having three strands formed substantially of aluminum and the remaining four strands formed substantially of copper, and the nineteen-strand conductor having seven centrally located strands formed substantially of aluminum and twelve peripherally disposed strands formed substantially of copper.

3,683,104

HEAT RESISTANT CABLE

Paul C. Woodland, and Daniel Moldovan, both of Midland, Mich., assignors to Dow Chemical Company, Midland, Mich.

Filed Jan. 7, 1971, Ser. No. 104,594
Int. Cl. H01b 7/02
U.S. Cl. 174—116 4 Claims



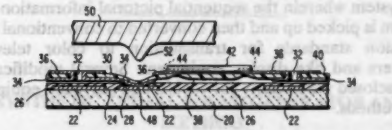
Heat resistant compositions comprising a blend or mixture of petrolatum and a partially cross-linked polymer such as p-tertiary-butylstyrene polymer cross-linked with dinvinylbenzene, which can also contain a multitude of hollow particles of a synthetic thermoplastic polymer such as a copolymer of styrene and acrylonitrile, are particularly useful as filler materials in cables such as communication cables.

3,683,105

MICROCIRCUIT MODULAR PACKAGE

Maurice B. Shamash, Randallstown; William W. Staley, Pasadena; Charles I. Denton, Ellicott City, all of Md., and Fred D. Walton, Playa-del-Rey, Calif., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Oct. 13, 1970, Ser. No. 80,392
Int. Cl. H05k 3/36
U.S. Cl. 174—68.5 13 Claims



Method and apparatus whereby the interconnection of integrated circuit chips is obtained by means of multilayers of microcircuit conductors fabricated on at least one flexible dielectric film. Metallized conductors are fabricated and selectively connected on both sides of the film by means of metallized throughholes. One or more integrated circuit chips are bonded and interconnected to the flexible film and the sub-assembly is then bonded and interconnected to a ceramic substrate sub-assembly which also contains appropriate metallized conductors thereon. The substrate additionally includes an insulating dielectric layer intermediate the opposing metallizations between the substrate and the lower surface of the flexible dielectric film and includes selected windows fabricated therein so that appropriate interconnection between the substrate conductors and the flexible film conductors can be accomplished by thermocompression bonding while at the same time preventing undesired shorting between opposing metallizations. The integrated chip may be mounted on either face of the flexible dielectric film or when desirable bonded to the substrate.

3,683,106

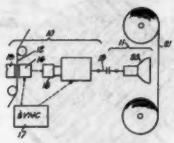
LOW BANDWIDTH COLOR INFORMATION TRANSMISSION SYSTEM

Kenneth D. Stephens, Jr., Salt Lake City, Utah, assignor to Alberto R. Esteves, Hato Key, San Juan, P.R.

Continuation-in-part of Ser. No. 804,733, Feb. 10, 1969. This application March 4, 1970, Ser. No. 16,396

Int. Cl. H04n *9/42, 3/00*

U.S. Cl. 178—5.2 R **14 Claims**



There is disclosed herein an economical method and system for transmitting color video information over relatively low bandwidth transmission facilities. Original color material such as color motion pictures, stills, or slides of data, news events, or the like, or live pickup of such events, is converted to field sequential video information through the use of passive field sequential pickup and sending equipment. As an example, images from a color motion picture film are picked up by a passive field sequential color camera. The camera employs color splitting optics which separate each film frame into color primary images which are directed to a single video pickup tube. The camera provides sequential color output signals representing each frame, each frame being represented by a sequence of blue, red, and green signals. These field sequential signals, although representing discrete colors from the original film, may be handled as black and white signals which are transmitted over a conventional low bandwidth transmission facility, such as a facsimile, telephone or teletype transmission channel. The transmitted signals are received at one or more receiving locations in a region, continent or the world. These signals are then recorded on film, preferably black and white for motion pictures and color for stills, by recording equipment, such as kinescope recording apparatus, or may be recorded on video tape for subsequent film recording. The resulting film is processed; and for color motion picture rendition may be employed in a projection and conversion system wherein the sequential pictorial information from the film is picked up and then converted to conventional color television standards for transmission to color television receivers and like display equipment. Several modifications are disclosed particularly for record and playback equipment and methods.

3,683,107

LONGITUDINAL SCAN MAGNETIC RECORDING AND REPRODUCING SYSTEM FOR COLOR TELEVISION SIGNALS

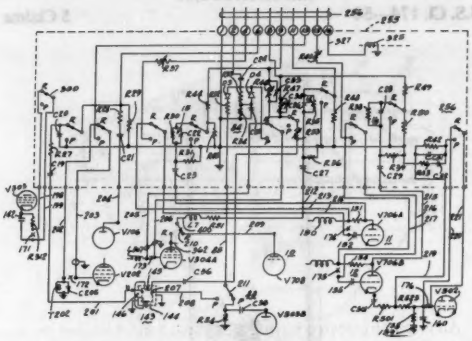
Marvin Camras, Glencoe, Ill., assignor to IIT Research Institute, Chicago, Ill.

Continuation-in-part of Ser. No. 126,121, July 24, 1961, Pat. No. 3,334,192, Continuation-in-part of Ser. No. 344,075, Feb. 11, 1964, Continuation-in-part of Ser. No. 389,021, Aug. 12, 1964, Pat. No. 3,469,037, Continuation-in-part of Ser. No. 393,282, Aug. 31, 1964, Pat. No. 3,506,780, Continuation-in-part of Ser. No. 401,832, Oct. 6, 1964, Pat. No. 3,495,046, Continuation-in-part of Ser. No. 407,402, Oct. 29, 1964, Pat. No. 3,513,265, Continuation-in-part of Ser. No. 439,340, March 12, 1965, Pat. No. 3,502,795, Continuation-in-part of Ser. Nos. 456,192, May 17, 1965, Pat. No. 3,449,528, and Ser. No. 493,271, Oct. 5, 1965, Pat. No. 3,531,600. This application Aug. 10, 1970, Ser. No. 62,601

Int. Cl. H04n *5/78*

U.S. Cl. 178—5.4 CD **2 Claims**

The present invention relates to the magnetic recording of televisions signals. The source of video signals is a television receiver. Adapter circuitry is disclosed which includes a detachable cable for coupling the magnetic transducing heads with the video output of the receiver for the purpose of recording the broadcast signal or the display of the



reproduced video signal derived from the tape. Detachment of the cable places the television receiver in a condition to allow the display of the broadcast video instead of recording the broadcast video signal.

3,683,108

TELEVISION CAMERA TUBE RESIDUAL CHARGE REMOVAL

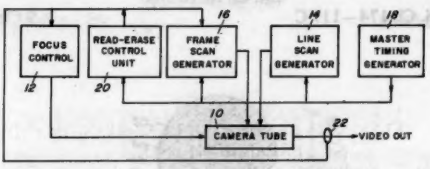
Leon Andre Pieters, 71 Beaumont Rd., Cambridge, England

Filed Oct. 30, 1970, Ser. No. 85,385

Claims priority, application Great Britain, Oct. 31, 1969, 53,402/69

Int. Cl. H04n *5/34*

U.S. Cl. 178—7.2 **13 Claims**



This invention concerns the reduction in the time taken to erase the residual charge pattern from a television camera tube target. The invention is applicable to television camera tubes having a photosensitive layer of fast internal time constant which is defined in the specification. The invention is performed by increasing the scanning rate of the electron beam during the erase scan. In this way more than one erase scan can be performed in the time normally occupied by a single frame scan of the camera target. Either frame scanning rate or line scanning rate or both can be increased. If the line scanning rate is increased it is also found necessary to increase the beam current and in some circumstances increased spot size during erase intervals has also been found to be advantageous. The invention also provides for gating the video output from the camera tube during each erase interval.

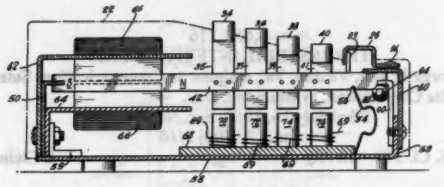
3,683,109

Patent Not Issued For This Number

3,683,110
ENCODING DEVICE

Francis H. Shepard, Jr., Countryside, Summit, N.J., assignor to Vogue Instrument Corporation, Plainview, N.J.

Filed April 29, 1968, Ser. No. 724,767
Int. Cl. H04l *15/12*
U.S. Cl. 178—17 C 35 Claims

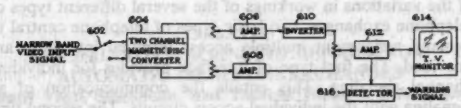


An encoding device having a keyboard in which the depression of a key suddenly changes the amount of magnetic flux flowing through one of an array of magnetic core elements. Windings are arranged on each core element in a coded pattern, and the sudden flux change induces in the windings electrical output signals which are encoded in accordance with the coded arrangement of the windings. The depression of the key pulls a magnetic armature away from the upper magnetized stop member and towards the magnetic core element. The rapid movement of the armature which is provided by this "snap-action" assures that the rate of change of flux in the magnetic core will be sufficient to generate electrical output signals of a satisfactory magnitude. The upper stop member and its mounting structure provide a shunt path through which the magnetic flux in the armature by-passes the core when the key is in its rest position so as to minimize the flux flowing through the core until the key is depressed. A return spring and other means are described to return the armature to its original rest position after the key has been released by the operator.

3,683,111
TELEVISION BANDWIDTH COMPRESSION AND EXPANSION SYSTEM

Glen R. Southworth, Boulder, Colo., assignor to Colorado Video, Incorporated, Boulder, Colo.

Filed June 18, 1969, Ser. No. 834,308
Int. Cl. H04n *7/18, 7/12, 7/02*; G08b *13/22*
U.S. Cl. 178—6 13 Claims

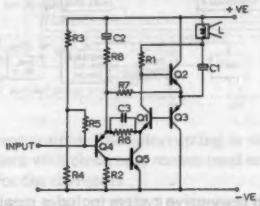


A television scan converter system converting a television signal to a narrow bandwidth by high order sampling techniques which may scramble the signals, and then converting the narrow bandwidth television signals to hard copy or a standard television signal. The system may include color transmission and utilizes components which may include a rotating magnetic disc memory, counters, and gating techniques in some embodiments with techniques allowing easy detection of moving objects in surveillance television.

3,683,112
TEMPERATURE COMPENSATED AMPLIFIER EMPLOYING COMPLEMENTARY PAIRS OF TRANSISTORS

Robert Nettleship, Cambridge, England, assignor to Pye Limited, Cambridge, England

Filed April 16, 1970, Ser. No. 29,021
Claims priority, application Great Britain, April 24, 1969, 21,038/69
Int. Cl. H03f *1/30*
U.S. Cl. 179—1 A 8 Claims

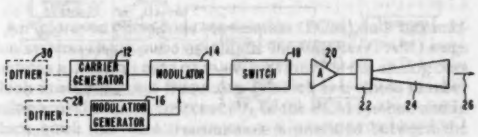


An amplifier including a first transistor and second and third transistors forming a complementary pair. The first and second transistors are of the same type. An input signal is applied to the emitter of the first transistor and a constant current to its collector, which is also connected to the base of the second transistor. The bases of the first and third transistors are connected while the emitters of the second and third transistors are commoned and connected to a load. A power supply is connected to the collectors of the second and third transistors.

3,683,113
SYNTHETIC ANIMAL SOUND GENERATOR AND METHOD

John L. Stewart, Portola Valley, Calif., assignor to Santa Rita Technology, Inc., Menlo Park, Calif.

Continuation of Ser. No. 648,907, June 26, 1967, abandoned.
This application Jan. 11, 1971, Ser. No. 105,616
Int. Cl. G08b *3/00*
U.S. Cl. 179—1 R 6 Claims

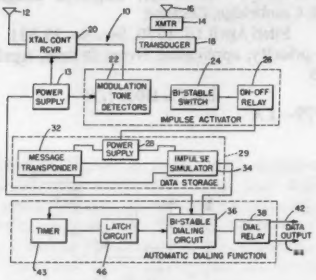


A circuit for generating signals in the audio frequency range which signals contain effective parts of animal calls. Because the signals are of relatively narrow bandwidth, the apparatus is uncomplex.

3,683,114
AUTOMATIC DIALING AND MESSAGE REPORTING SYSTEM

Edward J. Egan, 243 E. Knight St., Collingswood, N.J., and Joseph P. Gallagher, 21 Navajo Rd., Ni Nella, N.J.

Filed July 22, 1968, Ser. No. 746,625
Int. Cl. H04m *1/46, 11/04*
U.S. Cl. 179—5 9 Claims

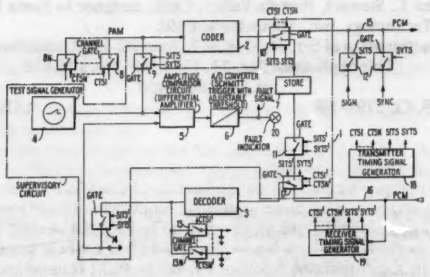


A condition responsive system includes means responsive to an abnormal condition to cause automatic transmission to a selected station over a telephone line a message relating to the abnormal condition.

3,683,115
ARRANGEMENT TO SUPERVISE THE OPERATION OF CODER AND DECODER CIRCUITS IN A PCM-TDM SYSTEM

Arnold Albert Schellenberg, Wettswil, Switzerland, assignor to International Standard Electric Corporation, New York, N.Y.

Filed July 15, 1969, Ser. No. 841,762
Claims priority, application Switzerland, Aug. 12, 1968, 12080/68
Int. Cl. H04j *3/14*
U.S. Cl. 179—15 BF 10 Claims

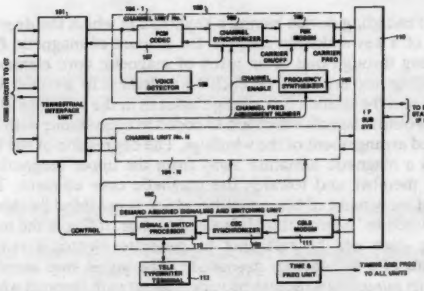


The coder and decoder of a terminal are placed in a closed loop excluded from the normal transmission lines during sync time and/or signalling time. During this time a low frequency test signal is applied to the coder and a comparison circuit. By gate means the output of the coder is directly coupled to the decoder of the same terminal. The output of the decoder is coupled to the comparison circuit. The comparison circuit will produce a fault indication when the difference between the two input signals applied thereto exceeds a predetermined amount. Continuous supervision over the whole range of the coder and decoder, without influencing the intelligence paths, is possible provided the waveform and frequency of the test signal is properly chosen.

3,683,116
TERRESTRIAL INTERFACE UNIT

George D. Dill, Vienna, Va., assignor to Communications Satellite Corporation, Washington, D.C.

Filed July 16, 1969, Ser. No. 842,838
Int. Cl. H04j *3/16*
U.S. Cl. 179—15 AQ 8 Claims

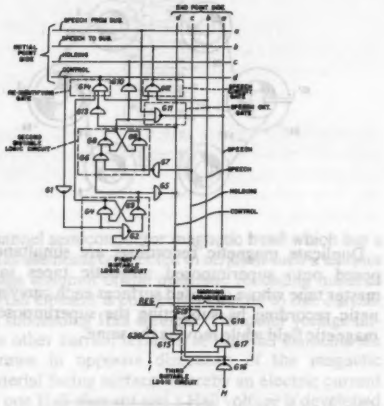


In a demand assigned multiple access system, a chosen satellite RF frequency band is divided on the basis of assigning a single voice channel per RF carrier. The RF band, thus divided, forms a "pool" of frequencies. The demand assigned multiple access system is fully variable, allowing all circuits to be selected by any station on demand. Thus, neither end of a channel is permanently associated with any terminal point, and the channels are paired to form a connection as required within the demand assignment pool. The system does not require a central station for system control, but instead uses a demand assignment signaling and switching unit for self-assignment of channels based on continually updated channel allocation status data provided via a common signaling channel. The common signaling channel is used to continuously apprise each earth station demand assignment signaling and switching unit of the availability of pool channels and to establish links directly with other stations. The demand assigned multiple access terminal is designed to be operated with all types of international telephone exchanges. Because of the variations in workings of the several different types of telephone exchanges, two basic types of telephone central to demand assignment multiple access terminal interfaces are provided. The first type of interface provides for individual channel signaling. This entails the communication of all signaling with the individual access circuits. The second type of interface provides for common channel signaling. This entails the communication of all signaling between the telephone central and the demand assignment multiple access terminal via a separate signaling channel. In all cases, the combined operation of the terrestrial interface unit and the demand assignment signaling and switching unit is such that the signaling between the telephone central and the demand assigned multiple access terminal is the same as if it were between two telephone centrals.

3,683,117
SELECTOR NETWORK WITH SCANNING- AND ESTABLISHING FUNCTION

Bengt Gunnar Magnusson, Enskede, and Theodor Gosta Neovius, Hagersten, both of Sweden, assignors to Telefonaktiebolaget L. M. Ericsson, Stockholm, Sweden

Filed Sept. 24, 1970, Ser. No. 74,953
Claims priority, application Sweden, Oct. 3, 1969, 13625/69
Int. Cl. H04q 3/49
U.S. Cl. 179—18 GF **6 Claims**



There is disclosed a selector network working according to the so-called end marking principle and using selector matrices of crossing point type wherein each crossing point is provided with a switching arrangement for performing scanning-, establishing- and reidentifying functions between an initial point side and an end point side.

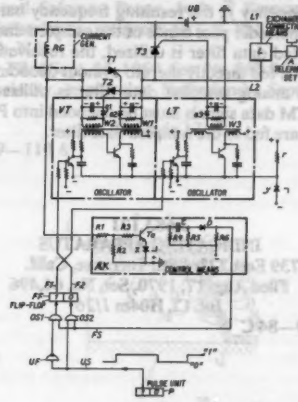
If the holding wire of the end point side is idle, upon an establishing signal from the initial point, supplied during said scanning- and establishing function on the control wire, a first bistable logic circuit is switched and the establishing signal is transmitted to the control wire on the end point side. One path is found to the marked end point. If the first bistable logic circuit is in switched state which remains independently of the condition of the holding wire, upon a busy marking signal supplied at the end point on the holding wire, a second bistable logic circuit is switched and the busy marking signal is transmitted to the holding wire at the initial point side and speech- and re-identification gates are activated. The second bistable logic circuit remains in its switched position independently of the resetting of the first bistable logic circuit and the activated gates connect the speech wires for the two speech directions and the control wires for a reidentifying signal from the end point to the initial point.

3,683,118
INTERRUPTOR FOR RINGING SIGNALS FROM AUTOMATIC TELEPHONE EXCHANGES

Frans Vago, Stockholm, and Tadeusz Wolpert, Bandhagen, both of Sweden, assignors to Telefonaktiebolaget L. M. Ericsson, Stockholm, Sweden

Filed Aug. 26, 1970, Ser. No. 67,156
Claims priority, application Sweden, Sept. 23, 1969, 13,062/69
Int. Cl. H04m 3/02
U.S. Cl. 179—18 HB **1 Claim**

The invention refers to telephone exchanges and concerns an interruptor for intermittent ringing signals to subscribers' lines. Since it must be possible to disconnect a called subscriber's line from the common interruptor, the ringing signals consist of an alternating voltage superimposed on the voltage



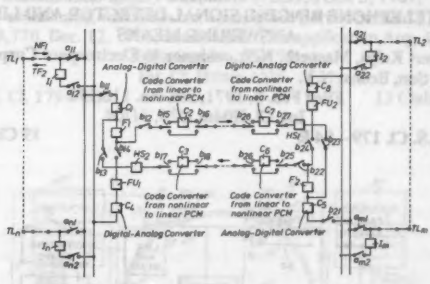
of a direct current source. The interrupting is carried out by means of thyristors with electronic means used to generate ignition voltages for the thyristors.

3,683,119
Patent Not Issued For This Number

3,683,120
PCM DATA TRANSMISSION SYSTEM

Dieter Schenkel, Au/Iller, Germany, assignor to Licentia Patentt-Verwaltungs-GmbH, Frankfurt am Main, Germany

Filed Nov. 30, 1970, Ser. No. 93,682
Claims priority, application Germany, Nov. 29, 1969, P 19 60 077.2
Int. Cl. H04j 1/00
U.S. Cl. 179—15 A **8 Claims**



An improved pulse code modulation (PCM) data transmission system whose pulse amplitude modulation (PAM) stage contains a sampled data or scanning filter for the analog data which is scanned at a frequency f_p which is a whole number multiple of the frame frequency f_R of the PCM system, and in which quasi four-wire transmission is provided between the PCM system and the connected users or parties without using a four-wire terminating set, whereby only one sampled data filter need be provided both for receiving and transmitting data. According to the invention circuit means are provided for coupling the received transmitted PCM signals, at the scanning frequency f_p, to the same sampled data filter utilized to filter the sampled analog signals from the respectively connected users, and further means are provided at the output of

the sampled data filter for shifting the center frequency of the carrier-frequency bands utilized for the transmission of data from the PAM stage to the respective connected users so that after further scanning of these carrier-frequency bands at the scanning frequency f_s the resulting frequency bands will not fall into the periodic pass bands of the sampled data filter. If a digital sampled data filter is utilized, the received PCM data signals may be fed directly thereto without decoding. Alternatively, if an analog sampled data filter is utilized, then the received PCM data signals must be decoded into PAM signals before they are fed to the sampled data filter.

3,683,121

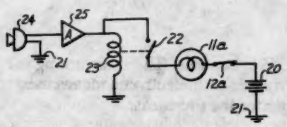
INDICATING APPARATUS

Akin Aksu, 739 East 223rd St., Torrance, Calif.

Filed Aug. 17, 1970, Ser. No. 64,496

Int. Cl. H04m 1/26

U.S. Cl. 179—84 C **4 Claims**



Apparatus according to the present disclosure is capable of indicating that a telephone has rung. The apparatus includes sensor means responsive to the ringing of a telephone. Indicator means is provided indicating that the telephone has been rung, and lock-in means is connected to the sensor means for operating the indicator means when the sensor means responds to the ringing of the telephone. Manually operable reset means is provided for removing the indication by the indicator. Preferably, the sensor means is an electrical transducer and the lock-in means is a switch capable of being set by a signal from the transducer.

3,683,122

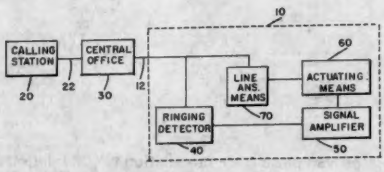
TELEPHONE RINGING SIGNAL DETECTOR AND LINE ANSWERING MEANS

Merl Kalju, Maspeth, N.Y., assignor to Electrospace Corporation, Bronx, N.Y.

Filed Feb. 8, 1971, Ser. No. 113,171

Int. Cl. H04m 1/26, 11/04

U.S. Cl. 179—84 R **19 Claims**



A telephone ringing signal detector associated with a line answering circuit for use with an incoming telephone line. The detector includes at least one neon lamp for conducting ringing signals to activate an element of the answering circuit when the neon lamp is conducting. The answering circuit further includes a switch which is normally open when no ringing signal is on the line. Activation of the element effects the closing of the switch so that a voice connection is made. Preferably, the detector includes two neon lamps for low and high voltage ringing, and a third neon lamp to by-pass signals other than ringing signals.

3,683,123

METHOD OF DUPLICATING MAGNETIC RECORDING TAPES USING BOTH SURFACES OF MASTER TAPE FOR IDENTICAL SIGNALS

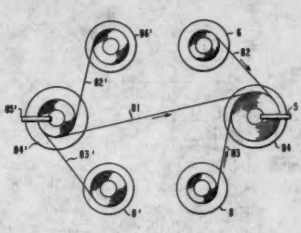
Shinro Fukuda, 210 Nakanuma, Minami Ashigara-Machi, Ashigara-Kamigun, Kanagawa, Japan

Filed June 30, 1970, Ser. No. 51,234

Claims priority, application Japan, July 4, 1969, 44/52948

Int. Cl. G11b 5/86, 15/32

U.S. Cl. 179—100.2 E **6 Claims**



Duplicate magnetic recordings are simultaneously transposed onto superimposed magnetic tapes sandwiching a master tape whose opposed surfaces each carry a master magnetic recording by subjecting the superimposed tapes to a magnetic field while moving the same.

3,683,124

Patent Not Issued For This Number

3,683,125

Patent Not Issued For This Number

3,683,126

ABRASION RESISTANT RECORDING HEAD

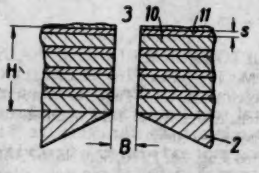
Gerhard Krause, Munich, Germany, assignor to Fernseh GmbH, Darmstadt, Germany

Filed May 15, 1970, Ser. No. 37,598

Claims priority, application Germany, June 19, 1969, P 19 31 003.3

Int. Cl. G11b 5/22, 5/40

U.S. Cl. 179—100.2 C **7 Claims**



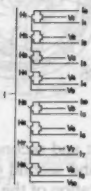
The body of the recording head is composed of a stack of alternately arranged abrasion resistant laminations and of magnetic laminations of relatively soft material. The abrasion resistant laminations are made of a hard metal alloy or of ceramics.

3,683,127

MULTI-CHANNEL SEMICONDUCTOR MAGNETIC HEAD

Keiichi Hori, Tokyo, Japan, assignor to Pioneer Electronic Corporation, Tokyo, Japan

Filed April 27, 1971, Ser. No. 137,934
Claims priority, application Japan, April 28, 1970, 44/41239
Int. Cl. G11b 5/38
U.S. Cl. 179—100.2 CH 2 Claims



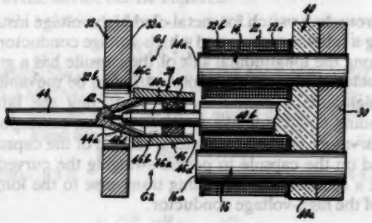
A multi-channel semiconductor magnetic head which has a plurality of Hall elements connected in series in such a manner that the voltage terminal of the magnetic recording material side of each Hall element is connected directly to one current terminal of a succeeding Hall element. The other voltage terminal and the other current terminal of the Hall elements are physically drawn in opposite directions of the magnetic recording material facing surface whereby an electric current is supplied to one Hall element and a Hall voltage is developed between a lead terminal of the Hall element and a lead terminal of the succeeding Hall element.

3,683,128

FLUX-BRIDGING STEREOPHONIC PICKUP

Joseph F. Grado, 4614 Seventh Ave., Brooklyn, N.Y.

Filed June 29, 1970, Ser. No. 50,624
Int. Cl. H04r 11/12
U.S. Cl. 179—100.41 K 8 Claims



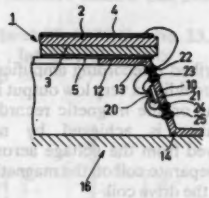
A phonograph pickup for the reproduction of stereophonic and/or monaural sound recordings in which signals are induced without substantially disrupting the flux path of the several operating gaps and wherein a flux-bridging member is operatively connected to the moving stylus of the pickup and disposed in proximity to the first and second operating gaps, but out of a direct flux path between such gaps, to effectively shorten the fixed gap length of one of the operating gaps and to correspondingly effectively lengthen the gap length of the other of the operating gaps and to induce corresponding signals in the pickup related to such stylus motion.

3,683,129

ELECTROACOUSTIC TRANSDUCER HAVING A DIAPHRAGM MADE OF AT LEAST ONE LAYER OF PIEZOELECTRIC MATERIAL

Jan Roos, and Salomon Boone, both of Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Sept. 25, 1969, Ser. No. 860,863
Claims priority, application Netherlands, Sept. 30, 1968, 6813993
Int. Cl. H04r 17/00
U.S. Cl. 179—110 A 7 Claims



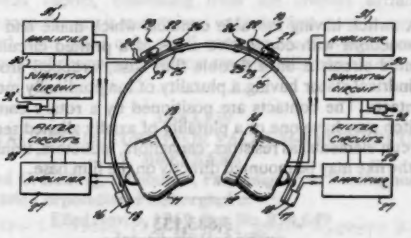
An electroacoustic transducer comprising a thin-walled cylindrical sleeve with a vibrating diaphragm that includes at least one layer of piezoelectric material and rigidly secured at its peripheral edge to one end of the sleeve. This allows the diaphragm to perform a pivotal movement at its peripheral edge. In a second embodiment the sleeve is conical with the narrow end flanged inwardly and the diaphragm rigidly secured thereto. If the sleeve is metal, an integrated amplifier may be mounted thereon so that the sleeve acts as a heat sink.

3,683,130

HEADSET WITH CIRCUIT CONTROL

Leonard R. Kahn, Freeport, Long Island, N.Y., assignor to Kahn Research Laboratories, Inc., Freeport, Long Island, N.Y.

Continuation-in-part of Ser. No. 672,513, Oct. 3, 1967, abandoned, which is a continuation-in-part of Ser. No. 599,770, Dec. 12, 1966, abandoned. This application Aug. 19, 1970, Ser. No. 65,170
Int. Cl. H04m 1/05
U.S. Cl. 179—156 13 Claims

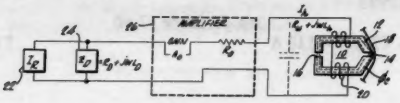


A headset for receiving sound derived from electrical currents. In addition to the usual earphones, the headset includes two single-pole, single-throw mercury switches which are connected in series with portions of the circuit supplying the earphones. The earphones are provided with foam plastic covers to shield the user from ambient noise. The mercury switches are mounted on the headset spring band and are operated by tilting the head of the user to the right or left side.

3,683,131
MAGNETIC TAPE RECORDING CIRCUIT

Wayne K. Hodder, Glendora, and Lewis B. Browder, Arcadia, both of Calif., assignors to Bell & Howell Company, Chicago, Ill.

Filed June 28, 1965, Ser. No. 467,650
Int. Cl. G11b 5/44
U.S. Cl. 179—100.2 K 7 Claims

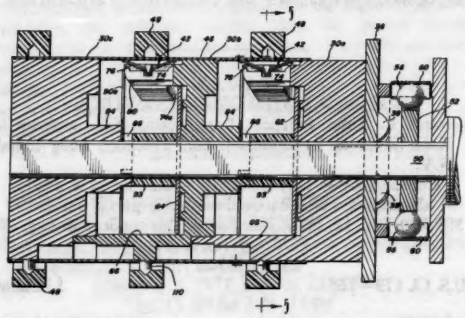


There is described a recording amplifier circuit for a magnetic recorder providing a very low output impedance in series with the winding on the magnetic recording head. The low output impedance is achieved by negative feedback, preferably derived from the voltage across the drive coil or derived from a separate coil on the magnetic head wound concentrically with the drive coil.

3,683,132
FLEXIBLE PRINTED CIRCUIT FORMING CONTACT SURFACE AROUND STATOR OF ROTARY SWITCH

Lonnie J. Richardson, Elgin, Ill., assignor to Oak Electro/Netics Corp.

Filed Sept. 8, 1970, Ser. No. 70,203
Int. Cl. H01h 19/62
U.S. Cl. 200—11 R 17 Claims



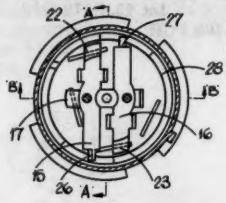
A switch having movable contacts which make and break connections with conductive areas of a printed circuit. The printed circuit is on a flexible film base, wrapped around a cylindrical stator having a plurality of longitudinally movable contacts. The contacts are positioned by a rotary cam. The switch may have one or a plurality of axially aligned sections. Circuit elements, as resistors, capacitors, inductors, transistors or the like may be mounted directly on the film base.

3,683,133
IGNITION SWITCHES

Alec John Heap, 18 Brunshaw Ave., Burnley, Lancashire, England

Filed Jan. 13, 1971, Ser. No. 106,018
Claims priority, application Great Britain, Jan. 17, 1970, 2,368/70
Int. Cl. H01h 27/06
U.S. Cl. 200—44 3 Claims

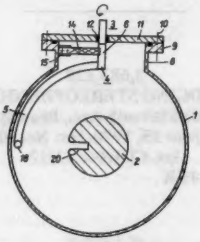
In an ignition switch for use in combination with a key operated steering column lock for a road vehicle, a movable contact member is mounted on a rotor for rotation with the rotor within the switch casing. First and second movable contact arms are carried by the rotor and are engageable with the contact member. Co-operating cam means on the casing of the switch and the first and second contact arms control engagement of the first and second contact arms with the contact member during rotation of the rotor relative to the casing, the first and second contact arms and the contact member defining the movable contacts of the switch.



3,683,134
GROUNDING SWITCH FOR METAL-CLAD HIGH-VOLTAGE SWITCHING INSTALLATIONS

Heinz Beer, Berlin 27, Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Germany

Filed June 9, 1971, Ser. No. 151,258
Claims priority, application Germany, June 30, 1970, P 20 33 854.9
Int. Cl. H01h 31/00
U.S. Cl. 200—48 R 6 Claims



A grounding switch for metal-clad high-voltage installations having a tubular capsule and a high-voltage conductor extending along the longitudinal axis of the capsule has a grounding conductor guided on the capsule so as to be movable toward the high-voltage conductor for contacting the latter. The grounding conductor has a curved portion corresponding to the curvature defined by a lateral section of the capsule and is guided on the capsule to permit swinging the curved portion about a rotation axis extending transverse to the longitudinal axis of the high-voltage conductor.

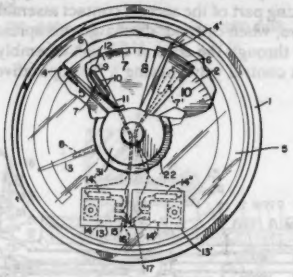
3,683,135
SIGNALING MECHANISM FOR GAUGES

Robert P. Oliver, Milford, Conn., assignor to America Chain & Cable Company, Inc., New York, N.Y.

Filed Feb. 27, 1970, Ser. No. 15,083
Int. Cl. G01d 13/26
U.S. Cl. 200—56 R 13 Claims

A signaling mechanism for gauges having an indicating pointer movable along the dial of the gauge in response to a variable supplied to the gauge and a set pointer positionable along the dial at preselected values of the variable. The signaling mechanism includes a switch operable in response to sensing of the position of the indicating pointer. The switch it-

self is mounted for movement relative to the set pointer and positionable along the dial independently thereof for sensing

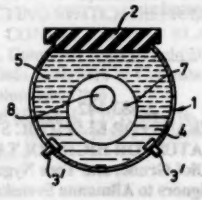


the indicating pointer when the latter precisely coincides with the position of the set pointer.

3,683,136
ELECTRICAL SWITCH HAVING ADJUSTABLE CONDUCTIVE-LIQUID LEVEL

Mathijs van den Bosch, Rue des Ecoles, 72-Thorigne sur Due, France

Filed Feb. 25, 1971, Ser. No. 118,900
Int. Cl. H01h *35/18*
U.S. Cl. 200—61.47 **4 Claims**

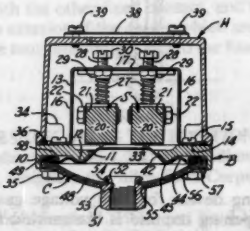


A device for protecting cars against skidding in curves, comprising a housing, filled with an electrically conducting liquid which is influenced by the centrifugal force when the car travels through the corner at speed, so that the level of the conducting liquid assumes an inclined position and the liquid can close or open an electrical circuit, leading to the switching-off of the ignition. By means of a displacer body the sensivity of the device can be adjusted.

3,683,137
PRESSURE SWITCH DIAPHRAGM ASSEMBLY WITH CLAMPING DIAPHRAGM SEALING MEANS

Marshall A. Stiltner, 632 Cliff Dr., Laguna Beach, Calif.

Filed Sept. 28, 1970, Ser. No. 76,090
Int. Cl. H01h *35/34*
U.S. Cl. 200—83 B **4 Claims**



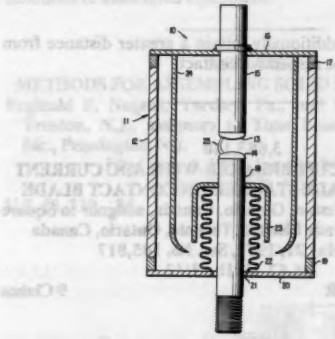
A pressure switch assembly in which the switch is actuated by a pressure responsive diaphragm which is held in assembled relation with the diaphragm bowl by a resilient seal ring and by a cap which is fastened to the switch base, the peripheries of the diaphragm and its bowl being sealingly engaged under the clamping force which deforms the seal ring, without a bond between or at the peripheries of the diaphragm and its bowl.

Such a pressure switch assembly in which the resilient seal ring backs up the diaphragm in the region of its outermost undulation where maximum stress occurs.

3,683,138
VACUUM SWITCH CONTACT

Akira Nabae; Mitsuru Arii, both of Tokyo; Osamu Arakawa, and Sadao Sugiyama, both of Yokohama, all of Japan, assignors to Tokyo Shibaure Electric Co., Ltd., Kawasaki-shi, Japan

Filed March 27, 1970, Ser. No. 23,392
Int. Cl. H01h *33/66*
U.S. Cl. 200—144 B **2 Claims**



A vacuum switch for making and breaking an inductive electric circuit is composed of a highly evacuated envelope and a pair of separable electrodes located within the envelope.

At least one of the contacts of the electrodes is made of a sintered alloy essentially composed of a metal carbide, such as tungsten carbide, having low work function, another electrically conductive metal, such as silver, which also offers good machining characteristics, and certain wettable materials which allow the silver to impregnate the tungsten carbide by filling in the interstices between the particles thereof. When the contacts are opened, or separated, the resultant heat of an arc initiated therebetween causes the tungsten carbide to emit thermionic electrons which are effective for ionizing the gas, or metal vapors, emanating from the contact surfaces, whereupon the arc is maintained until the first current zero is reached even when only small currents are flowing through the same and chopping problems are generally prevented.

3,683,139
CONTACT STRUCTURES FOR VACUUM-TYPE CIRCUIT BREAKERS

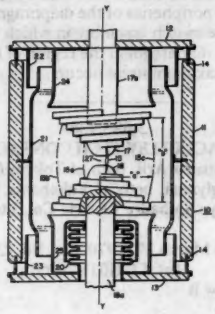
Howard C. Ludwig, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Nov. 6, 1969, Ser. No. 874,649
Int. Cl. H01h *33/66*
U.S. Cl. 200—144 B **4 Claims**

A vacuum-type circuit breaker is provided having two cooperable generally conically shaped separable contacts, in which each of the contacts has continuous spiral-shaped shoulders forming a progressively greater length for the established arc as it is rotated about the separated contacts.

As the arc is magnetically rotated around the two contacts with its terminals at the continuous spiral-shaped shoulders, the arc progressively assumes a greater length caused by the

progressive movement of the terminals of the arc upon the spirally arranged stepped shoulders, which not only increase



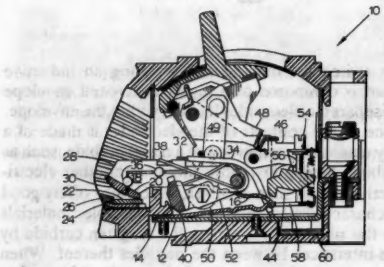
in diameter, but, additionally, attain a greater distance from the tip portion of the respective contact.

3,683,140

ELECTRIC CIRCUIT BREAKER WITH ARC CURRENT SHUNTING BLADE STACKED ON CONTACT BLADE

Ronald G. Peck, Weston, Ontario, Canada, assignor to Square D. Company Canada Limited, Toronto, Ontario, Canada

Filed May 21, 1971, Ser. No. 145,817
Int. Cl. H01h *33/12*
U.S. Cl. 200—146 R **9 Claims**



A movable contact blade of an electric circuit breaker is connected in series with a bimetallic strip forming a part of a tripping device. An arc current shunting blade is stacked on the contact blade, insulated therefrom, and connected to a load terminal strap in shunting relationship to the bimetallic strip. An arc which occurs during interruption of a severe overload current is transferred from the contact blade to the arc current shunting blade, causing the high current to bypass the bimetallic strip.

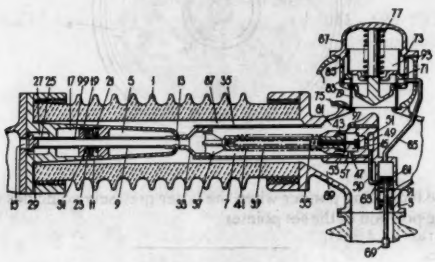
3,683,141

GAS BLAST INTERRUPTERS

Cecil Arthur Fawdrey, Manchester; John Robert Simms, Stalybridge; Derek Kenworthy, Flixton; Albert Roxburgh, Appleton, near Warrington, all of England, and David Hobbs, deceased, late of Urmston, England (by Jeanie Wright Hobbs, administratrix), assignors to Associated Electrical Industries Limited, London, England

Filed June 23, 1970, Ser. No. 49,066
Int. Cl. H01h *33/86*
U.S. Cl. 200—148 B **7 Claims**

A gas blast interrupter has two hollow contact assemblies enclosed in a housing which can be filled with compressed air. A main exhaust valve, when opened, discharges compressed air from the interior of one contact assembly and thereby brings about separation of its contact making part from the contact making part of the second contact assembly. A further exhaust valve, when opened, discharges compressed air from the housing through the second contact assembly. The interrupter has a control valve having a first operative position in



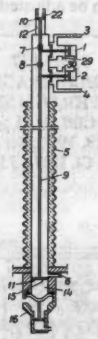
which compressed air is utilized to bring about the sequential opening of the main exhaust valve and the further exhaust valve and to close those valves after their contact making parts have separated, and having a second operative position in which compressed air is utilized to cause the contact making parts to engage and the contact assemblies and the housing to be filled with compressed air.

3,683,142

OPERATING MEANS FOR ELECTRIC SWITCHING APPARATUS FOR HIGH VOLTAGE

Par Arnholm; Per-Olof Grune, and Tore Nygaard, all of Ludvika, Sweden, assignors to Allmanna Svenska Elektriska Aktiebolaget, Vasteras, Sweden

Filed May 7, 1971, Ser. No. 141,174
Claims priority, application Sweden, May 27, 1970, 7251
Int. Cl. H01h *33/80*
U.S. Cl. 200—148 R **10 Claims**



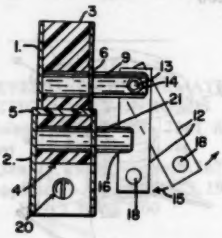
In an operating device for high voltage gas blast circuit breakers, the opening impulse is transmitted from earth to high potential by means of an insulating tension rod. A high initial acceleration of the rod is obtained by suddenly evacuating a pressurized cylinder space at earth potential through an electro-dynamically operated valve.

3,683,143

BATTERY CUTOFF SWITCH

Lloyd William Moore, 5653 White Fir Way Apt. #1, Sacramento, Calif.

Filed Nov. 3, 1970, Ser. No. 880,008
Int. Cl. H01h 1/42, 17/18
U.S. Cl. 200—162 5 Claims



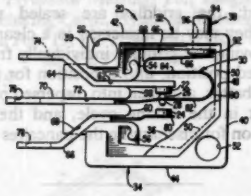
A battery cutoff switch formed of tiered cylindrical insulators covered with tubes of conductive material and readily mountable upon a battery terminal. A knife blade is the movable contact.

3,683,144

NON-SNAP-ACTING SWITCH DEVICES WITH S-SHAPED CONTACT SPRING BLADE

John W. Bowen, Columbus, and Donald D. Perkins, Worthington, both of Ohio, assignors to Columbus Electric Manufacturing Co., Columbus, Ohio

Filed March 4, 1971, Ser. No. 120,989
Int. Cl. H01h 1/18, 3/04
U.S. Cl. 200—166 J 9 Claims



A switching device including a casing, a pair of fixed contacts in the casing, a flexible member in the casing carrying and biasing a movable contact against one of the fixed contacts, an actuator engaging the flexible member and movable relative to the casing to displace the member and transfer the movable contact out of engagement with the fixed contact and a second movable contact mounted on the member into engagement with the other fixed contact, and terminals accessible from the exterior of the casing which are electrically connected to the movable contact and to the fixed contacts.

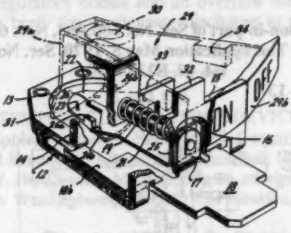
3,683,145

MEANS FOR INDICATING THE POSITION OF A SWITCH

Arthur Berenbaum, Holland, Pa., and William A. West, Woodbury, N.J., assignors to Philco-Ford Corporation, Philadelphia, Pa.

Filed March 11, 1971, Ser. No. 123,153
Int. Cl. H01h 9/16
U.S. Cl. 200—167 R 3 Claims

Switching apparatus of the so-called "push-push" type in which a manually operable switch control member occupies the same position regardless of the position of adjustment of the switch. The apparatus includes an indicating member driven, alternately, between two positions in correspondence with the adjustment of the contacts of the push-push switch, and indicating the position of such contacts in terms of desired functions of associated equipment.

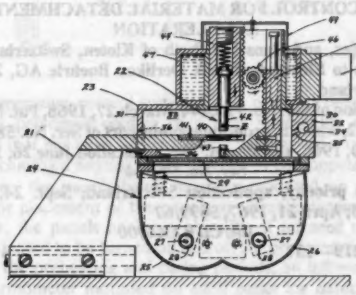


3,683,146

METHODS FOR ASSEMBLING SOLID STATE DEVICES

Reginald F. Nugent, Yardley, Pa., and George P. Snyder, Trenton, N.J., assignors to Time Research Laboratories, Inc., Pennington, N.J.

Filed Aug. 4, 1969, Ser. No. 847,374
Int. Cl. B23k 1/06
U.S. Cl. 219—85 5 Claims



Methods for hermetically sealing the lids of flat packs and for soldering the spacers in stacks to the pins and to the conductors on the substrates with infra-red and mechanical energy.

3,683,147

METHOD OF FORGE TYPE WELDING

Donald H. Orts, Middletown, Ohio, assignor to Armco Steel Corporation, Middletown, Ohio

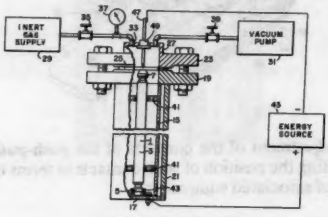
Filed April 19, 1971, Ser. No. 135,368
Int. Cl. B23k 9/00
U.S. Cl. 219—117 R 4 Claims

An improved method of forge type welding ferrous materials which includes interposing a layer of refractory material having a melting point greater than about 1,650° C. and an electrical resistivity less than about 10,000 microohm-cm., at the faying plane of a joint, i.e., between the surfaces of ferrous material to be welded, and simultaneously applying pressure and an electric current normal thereto to effect the welding.

3,683,148
FABRICATION OF NUCLEAR FUEL ASSEMBLIES AND RESULTANT PRODUCT

Eugene S. Boyko, 720 Greenleaf Dr., Monroeville, Pa., and Joseph Campbell, 10135 Pearl Street, Penn Hills, Pittsburgh, Pa.

Continuation-in-part of Ser. No. 680,863, Nov. 6, 1967, abandoned. This application May 5, 1970, Ser. No. 33,156
Int. Cl. B23k 9/00
U.S. Cl. 219—137 8 Claims

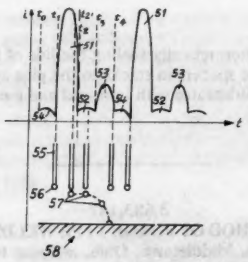


A nuclear fuel assembly has an end plug and is sealed except for a small diameter axial bore in the plug. The plug provides a collar around the outer end of the bore which when fused provides sufficient material to seal the bore. Before the bore is sealed the assembly is filled with an inert-gas at high pressure. An electric arc is then established between an electrode and the collar to melt the collar sufficiently to seal the bore.

3,683,149
METHOD FOR ARC WELDING USING INDIVIDUAL PULSE CONTROL FOR MATERIAL DETACHMENT AND ACCELERATION

Karl Mages, and Hans Ulli, both of Kloten, Switzerland, assignors to Elektrodenfabrik Oerlikon Buehrle AG, Zurich, Switzerland

Division of Ser. No. 716,444, March 27, 1968, Pat. No. 3,568,032, which is a continuation-in-part of Ser. No. 580,737, Sept. 20, 1966, abandoned. This application June 26, 1970, Ser. No. 50,044
Claims priority, application Switzerland, Sept. 24, 1965, 13236/65; April 21, 1967, 5699/67
Int. Cl. B23t 9/00
U.S. Cl. 219—137 8 Claims

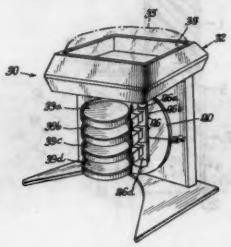


A method of arc welding wherein the welding current delivered to the welding electrode is periodically caused to assume a plurality of essentially different amplitude values such that a waveform having at least a main and auxiliary amplitude is provided to the electrode. The main amplitude is provided to fuse and detach material from the end of the electrode while the auxiliary amplitude is used to accelerate the detached material to the weld puddle.

3,683,150
PANCAKE MAKING MACHINE

Lawrence Joseph Kehl, North Riverside; Irvin Richard Triner, Stickney, and Robert Gerald Janis, Cicero, all of Ill., assignors to The Bunker-Ramo Corporation, North Oak Brook, Ill.

Filed Oct. 9, 1970, Ser. No. 79,409
Int. Cl. H05b 1/00
U.S. Cl. 219—200 17 Claims

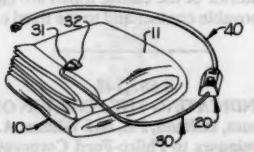


In a machine for making pancakes in an automatic operation which includes a cabinet with a compartment at the top in which is a container for batter, and a compartment therebelow in which griddles are disposed, and insulation between the compartments; — means for heating the griddles individually and sensing the heat thereof, including in each an imbedded heating element and an imbedded sensing element; means for mounting the griddles and made of material for insulating the heat directly from the griddles so as not to transmit the heat to the batter; the mounting means including a hollow tube for enclosing a plurality of electric wires leading to the heating and sensing elements in the griddles; the mounting means also including self-contained means demountably supporting the griddles, with detachable electrical contacts between the wires in the mounting means and the elements in the griddles, and arranged so that upon mechanical mounting of the griddles on the mounting means the electrical contacts are automatically interconnected; the griddles are sealed so that, when demounted, they may be immersed in a cleaning liquid; and means for moving the griddles individually from a vertically aligned stacked position, into a position for filling from the supply of the batter, and then into dispersed positions for distributing heat in the baking cycle, and then again into a stacked position for discharging the pancakes onto a receiver or plate.

3,683,151
ELECTRICALLY HEATED BEDCOVER WITH THERMOSTATLESS OVERHEAT PROTECTION CIRCUIT AND SEPARATE COMFORT CONTROL

Edwin R. Mills, Raleigh, and Ernest L. Elmore, Smithfield, both of N.C., assignors to Fieldcrest Mills, Inc., Eden, N.C.

Filed Feb. 26, 1971, Ser. No. 119,104
Int. Cl. H05b 1/00
U.S. Cl. 219—212 8 Claims



An electrically heated bedcover wherein the generation of heat upon flow of electrical current through an electrical heating element is controlled, in response to variations in ambient temperature affecting the comfort of a user of the bedcover,

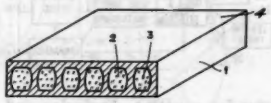
by a comfort control circuit while continuance of any unsafe localized overheat condition is prevented by an overheat protection circuit which is physically separate from the comfort control circuit. By such separation, an electrically heated bedcover having a gate controlled semiconductor switch included in a thermostatless overheat protection circuit is adapted for cooperation with a comfort control circuit which also has utility with other types of electrically heated bedcovers.

3,683,152

MEANS FOR PREVENTING THE FORMATION OF ICE, PARTICULARLY ON ROADS

Nikolaus Laing, Hofener Weg 35-37, 7141 Aldingen, near Stuttgart, Germany

Filed Jan. 27, 1970, Ser. No. 6,267
Claims priority, application Austria, Feb. 3, 1969, 1073/69
Int. Cl. H05b *1/00*
U.S. Cl. 219—213 **17 Claims**



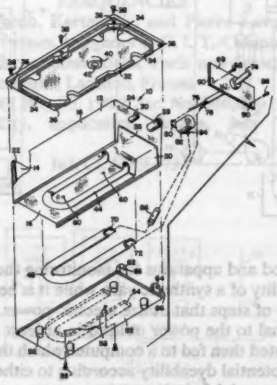
Means for preventing the formation of ice on external surfaces endangered by frost comprising a heat storage body having a melting point slightly above the freezing point of water. This heat storage body is in heat conductive communication with the external surface and stores the energy radiated by the sun during the day by melting, this energy being given out again as soon as the temperature of the surface approaches the threshold of 0° C.

3,683,153

VAPORIZER WITH EXTERNAL HEATING ELEMENT

John A. Heyer, Plymouth Meeting, Pa., assignor to Victory Metal Manufacturing Corp., Plymouth Meeting, Pa.

Filed Feb. 19, 1971, Ser. No. 116,810
Int. Cl. F22b *1/28*
U.S. Cl. 219—275 **3 Claims**



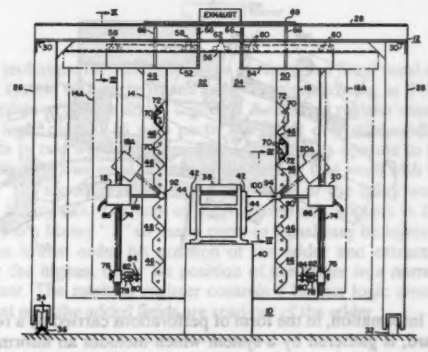
A vaporizer receiving and vaporizing condensate from refrigerating equipment including a condensate holding body, an electrical heating element positioned exteriorly of the body and heating the condensate contained within the body, said body having a bottom position groove which opens downwardly to receive the heating element in intimate contact therewithin and electrical controls to assure maximum vaporizing efficiency without overheating or other danger from electrical failure. The vaporizer also includes a tight fitting cover to comply with the requirements of the various sanitation regulatory bodies and an overflow tube extending through the body for condensate discharge in the event of overload.

3,683,154

TEMPERATURE CONTROL DEVICE

Harry P. Kipple, Pittsburgh, Pa.; Virgil J. Cozzarin, Clarence, N.Y., and Francis C. Kapperman, deceased, late of Eggertsville, N.Y. (by Dorothy M. Kapperman, administratrix), assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Nov. 16, 1970, Ser. No. 89,800
Int. Cl. F27d *11/02*
U.S. Cl. 219—412 **5 Claims**



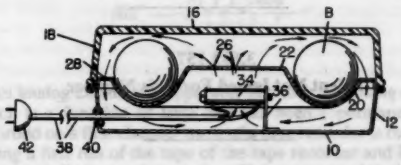
A temperature control system for an oven for heating and curing a powdered coating of a heat hardenable resinous material that has been applied to coil windings of a magnetic core, including a heating panel on each of two opposite sides of a core, the panels being movably mounted on an oven frame for placement of the panels at suitable distances from the core, the panels having a plurality of infrared radiation lamps adapted to be turned on and off for predetermined portions of the preheating and curing periods, an infrared radiation thermometer mounted on each panel for detecting the temperature of a selected portion of the coating and for controlling the on and off status of the lamps, and the thermometers being pivotally mounted in the corresponding panel for enabling direction of the thermometer to the selected portion of the coating.

3,683,155

GOLF BALL HEATER

Donald I. Loofbourow, 1590 Fernwood Dr., Lake Oswego, Oreg.

Filed Feb. 12, 1971, Ser. No. 115,006
Int. Cl. H05b *3/06*
U.S. Cl. 219—521 **7 Claims**



A hollow housing removably encloses a golf ball support spaced from the top and bottom ends of a housing. The golf

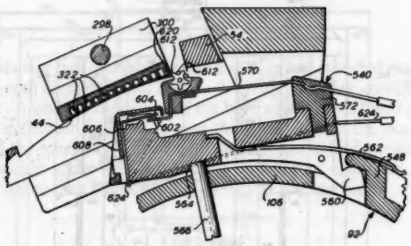
ball support is provided with an annular trough for retaining golf balls, and the center and perimeter portions of the support are perforated to allow circulation of air within the housing relative to a heater located below the center portion of the support.

3,683,156

INFORMATION GATHERING SYSTEM

John H. King, Chatman, and Russell W. Larson, Montville, both of N.J., assignors to Litton Business Systems, Inc., Belleville, N.J.

Filed Aug. 7, 1969, Ser. No. 858,556
Int. Cl. G06k 7/04; H01h 43/08
U.S. Cl. 235—61.11 C **7 Claims**



Information, in the form of perforations carried by a record card, is gathered by a system which includes an information storage unit housed in proximity to, and for coaction with, a record reader, and a keyboard entry device. The information storage unit magnetically records on tape the information transmitted to it from either the reader or the keyboard. The reader, though the use of star wheels, reads the perforated data one column at a time and transmits same through appropriate logic to the stored unit. The star wheels are mounted in cantilever fashion on first conductive spring like elements which urge the wheels into coaction with the record and the perforations carried thereby. When a star wheel encounters a perforation its spring like element moves into contact with a second conductive element to close a circuit. Said second conductive element is formed to yield when contacted by said first element to insure proper seating of the star wheel in the perforation and subsequent coaction thereof with other perforations. The star wheels are mounted in a stationary manner; while the record, after being laid upon a receiving bed, is moved in an arcuate path and in such a manner that it is locked in position, sensed by the star wheels, returned to its initial position, and subsequently ejected from the reader. If the data sensed is unacceptable to the logic the record remains on the reading bed as an indication thereof. The operator, thereafter can enter the data through the intermediary of the keyboard entry device.

3,683,157

Patent Not Issued For This Number

3,683,158

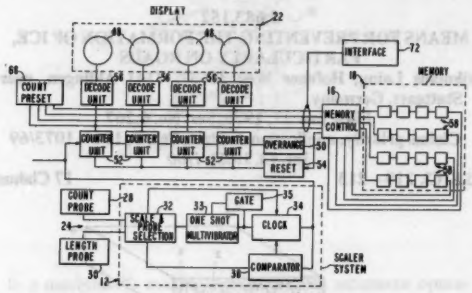
Patent Not Issued For This Number

3,683,159

ELECTRONIC COUNTER AND STORAGE APPARATUS

Robert H. Welch, and Kenneth D. Boyce, both of Mountain View, Calif., assignors to Diversified Electronics Co., Inc., Sunnyvale, Calif.

Filed Jan. 21, 1969, Ser. No. 792,392
Int. Cl. H03k 21/18
U.S. Cl. 235—92 EA **15 Claims**



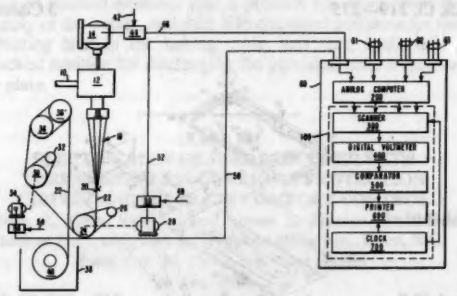
Apparatus for counting, displaying and storing numerical data such as numbers of discrete items and linear distances. The data relating in various items and distances can be stored in respective memory locations for subsequent readout. The apparatus can be preset to count forwardly from a predetermined number and can provide the data input for other data handling equipment, such as a computer.

3,683,160

METHOD AND APPARATUS FOR MONITORING AND PREDICTING THE LEVEL OF DYEABILITY OF YARN DURING ITS PROCESSING

William Thomas Windley, Seaford, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed March 24, 1970, Ser. No. 22,343
Int. Cl. G06g 7/14; D01d 5/12
U.S. Cl. 235—151.13 **14 Claims**

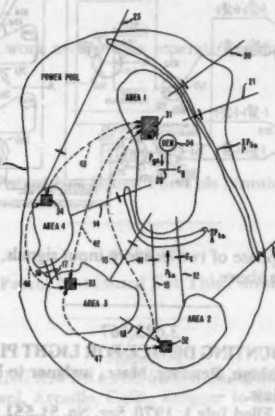


A method and apparatus for monitoring the level of potential dyeability of a synthetic yarn while it is being produced in a plurality of steps that utilize electric power. Electric signals proportional to the power utilized in at least two of the steps are generated then fed to a computer which then computes indices of potential dyeability according to either a quadratic or linear polynomial function and generates output signals proportional to these indices. The computer output signals are then compared to preselected limits to determine and indicate the occurrence of out-of-limits dyeability values. In some situations, electric signals related to specific physical parameters other than electric power such as yarn tension, polymer viscosity and temperature may be used to supplement, or supplant the above signals in the computation.

3,683,161
COMPUTING ECONOMIC POWER DISTRIBUTION IN POWER TOOLS

Walter O. Stadlin, Eagleville, and Bruce F. Wollenberg, Chalfont, both of Pa., assignors to Leeds & Northrup Company, Philadelphia, Pa.

Filed Sept. 8, 1970, Ser. No. 70,274
Int. Cl. G06f *15/56, 15/06;* H02j *3/06*
U.S. Cl. 235—151.21 6 Claims

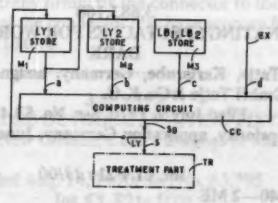


The economic dispatch of generation in interconnected areas is computed by determining the generation which will cause the incremental cost of power at each of the interarea tie points, as calculated from the interconnected areas, to be equal at the existing load level. A computer having its own loss matrix is utilized in each area. It computes the tie point costs on the basis of cost information sent from the areas interconnected to it, and it also sends its own costs to those areas. In each area the desired generation and net tie line interchange are computed to provide a basis for controlling the area's generation.

3,683,162
DIGITAL FILTERING FOR DETECTING COMPONENT FREQUENCIES FROM A SET OF PREDETERMINED FREQUENCIES

Jean-Baptiste Jacob, Kertanguy, and Pierre Lavanant, Lannion, both of France, assignors to C. I. T.-Compagnie Industrielle des Telecommunications, Paris and Societe Lannionnaise D'Electronique, Lannion, France

Filed July 30, 1969, Ser. No. 846,030
Claims priority, application France, July 30, 1968, 68161172
Int. Cl. G06f *7/38*
U.S. Cl. 235—156 8 Claims

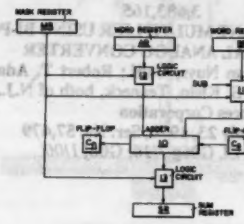


A receiving device comprising a filtering section consisting of as many band-pass analysis filters as there are different component frequencies in the signals which can be received, and a processing section enabling an analysis of the energy in the individual filters.

3,683,163
VARIABLE FIELD ADDER

Trevor William Hanslip, Stanmore, England, assignor to International Computers Limited, London, England

Filed Aug. 20, 1969, Ser. No. 851,591
Claims priority, application Great Britain, Aug. 27, 1968, 40,863/68
Int. Cl. G06f *7/28, 7/385*
U.S. Cl. 235—173 4 Claims

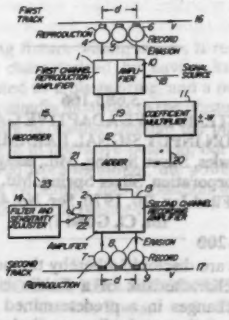


A technique for adding fields or portions in a fixed word adding system with carry-in and carry-out signals being as if two complete words are added together. A masking register causes two logic circuits to pass particular fields of corresponding words in two word registers. The logic circuits operate to fill the digits of one word outside of the field of that word with binary "1" signals and corresponding digits of the other word with binary O's. The sum of each digit which appears in the adder is a binary "1" so that a carry-in signal may be injected at the lowest order bit position of the adder and extracted from the highest order bit position of the adder in a normal manner. The masking register controls a further logic circuit so that only the added fields are read out of the adder.

3,683,164
ANALOG CALCULATION APPARATUS FOR PERFORMING CONVOLUTION

Shigeo Minami, Ashiya-shi, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed April 16, 1969, Ser. No. 816,549
Claims priority, application Japan, April 27, 1968, 43/28505
Int. Cl. G06g *7/19*
U.S. Cl. 235—181 5 Claims



An analog calculating apparatus in which an analog signal, which is a function of time and has been (permanently) recorded on a first channel track of a tape recorder is read out during a first run of the tape of the tape recorder and is multiplied by a first one of a set of coefficients at equal time intervals in a coefficient multiplier and recorded on a second channel track of the tape recorder. During the second run of the

tape the analog signal read out from the first track is then multiplied by the second coefficient in the coefficient multiplier and added through an adder to the product read out from the second track, and the sum is then recorded on the second track immediately after the second track is erased, and this latter operation is then repeated.

3,683,165

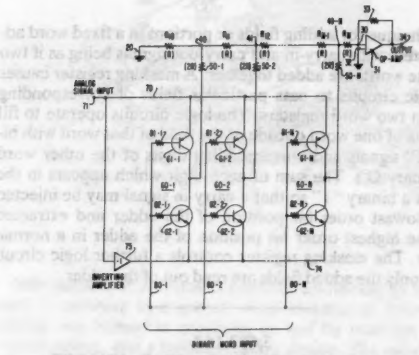
FOUR QUADRANT MULTIPLIER USING BI-POLAR DIGITAL ANALOG CONVERTER

Paul H. Grobert, Van Nuys, Calif.; Robert T. Adams, Short Hills, and Melvin S. Klein, Teaneck, both of N.J., assignors to Computer Sciences Corporation

Filed July 23, 1970, Ser. No. 57,479

Int. Cl. G06g 7/16; G06j 1/00

U.S. Cl. 235—194 **5 Claims**



There is disclosed a four quadrant multiplier circuit whose output is the bi-polar product of a signed analog voltage and a signed voltage expressed as a digital word. The circuit includes matrix resistors in a bi-polar converter which are switched between the reference voltage and the inverse of the reference voltage. Four quadrant multiplication is accomplished with only one resistor matrix and the use of complementary transistor pairs as bi-polar matrix resistor switches.

3,683,166

FLUIDIC SYSTEMS HAVE ADAPTIVE GAIN DEPENDENT UPON INPUT SIGNAL PARAMETERS

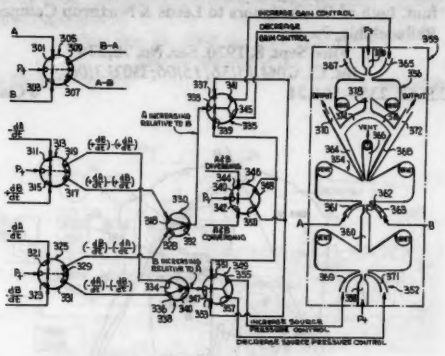
Ronald E. Bowles, Silver Spring, Md., assignor to Bowles Engineering Corporation, Silver Spring, Md.

Filed Jan. 20, 1970, Ser. No. 4,315

Int. Cl. G06d 1/08

U.S. Cl. 235—200 **41 Claims**

Techniques are disclosed whereby the output signal versus input signal characteristic of a fluidic circuit is varied in response to changes in a predetermined parameter of the input signal. In various embodiments disclosed the input signal parameter of interest is the average amplitude, magnitude of amplitude fluctuations with respect to average amplitude, frequency of amplitude fluctuations from average amplitude, average magnitude of fluctuations from average amplitude, average frequency of amplitude fluctuations from average amplitude, first or higher order derivatives with respect to time of the input signal amplitude, phase, amplitude or frequency, frequency difference between two input signals, difference between derivatives with respect to time of amplitude,



frequency or phase of two or more input signals, or any combination of the above.

3,683,167

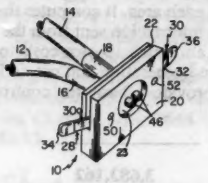
MOUNTING DEVICE FOR LIGHT PIPE

Michael L. Rishton, Reading, Mass., assignor to Dyonics, Inc., Woburn, Mass.

Filed July 1, 1970, Ser. No. 51,551

Int. Cl. F21

U.S. Cl. 240—1 **3 Claims**



A mounting device, for retaining a member having a surface to be illuminated in a fixed relation to a source of illumination, comprising a body portion having a slot therein and a channel therethrough, the channel intersecting and having its axis generally transverse to the slot, and being adapted to receive the member; a clamping member mounted with the slot for movement between a first position in which it at least partially blocks the channel and a second position in which it does not block the channel; and biasing means which resiliently urge the clamping member toward the first position.

3,683,168

ILLUMINATING SPECTACLES FOR WORKING IN THE DARK

Joachim Tatje, Karlsruhe, Germany, assignor to Elta Vertriebs-GmbH Tatje & Co. K.G.

Filed July 9, 1970, Ser. No. 53,480

Claims priority, application Germany, June 28, 1969, G 69 25 796.1

Int. Cl. F21v 33/00

U.S. Cl. 240—2 ME **14 Claims**

In the known illuminating spectacles of binocular or monocular type the batteries for energizing the lamps and the means for switching on and off the lamps are disposed in a separate container which has to be carried together with the cables by the wearer. In this invention the batteries, as minia-

ture batteries, as well as the switching means and the cables are disposed in the spectacle frame so that the user is not hindered in his work neither by a seperate container nor by cables.

3,683,169

Patent Not Issued For This Number

3,683,170

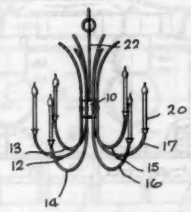
Patent Not Issued For This Number

3,683,171

ATTACHING APPARATUS FOR CHANDELIER ARMS

Ben J. Sclafani, Arcadia, Calif., assignor to Scovill Manufacturing Company

Filed June 29, 1970, Ser. No. 50,737
Int. Cl. F21s *1/06*
U.S. Cl. 240—78 F **4 Claims**



Apparatus for affixing the chandalier arms of a lighting fixture to the body thereof, to hold the arms in place while permitting electrical wires to pass from the body through slots in the arm and then along the inside of the arms. The attaching apparatus includes a U-shaped connector with a rounded base that can encompass a side of a chandalier arm and a pair of legs which originally diverge and which have protrusions which enter a slot in the arm when the legs are squeezed together, to thereby firmly fix the connector to the chandalier arm. The ends of the connector legs have grooves for engaging the body of the fixture.

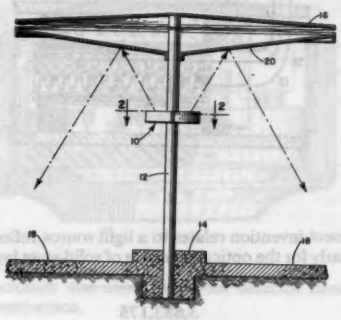
3,683,172

SUSPENDED OUTDOOR LIGHTING FIXTURE

Eliot F. Noyes, New Canaan, Conn., assignor to Mobil Oil Corporation

Filed Aug. 14, 1970, Ser. No. 63,795
Int. Cl. F21s *1/10*
U.S. Cl. 240—84 **7 Claims**

A lighting fixture for illuminating an outdoor area such as a gasoline service station island, comprising a vertical center post, an annular housing supported on said post and spaced concentrically around and away from said post, a plurality of lights enclosed on the bottom and on the sides by said annular housing and positioned to cast their rays upwardly, and a



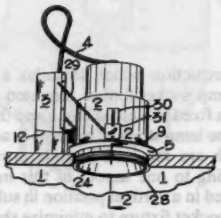
canopy positioned on said center post above said annular housing and having a lower reflective surface to reflect the light rays onto the outdoor area to be illuminated.

3,683,173

RECESSED LIGHTING FIXTURE INCLUDING PIVOTALLY MOUNTED POWER SUPPLY

Edwin F. Guth, Jr., St. Louis, Mo., assignor to The Edwin F. Guth Company, St. Louis, Mo.

Filed Sept. 4, 1969, Ser. No. 855,337
Int. Cl. F21s *1/02*
U.S. Cl. 240—78 HA **7 Claims**



Electric lighting fixture which, in use, is recessed within a ceiling or wall, characterized by having its lamp housing removably mounted to a plaster-ring, and a power regulating instrumentality hingedly mounted to the plaster-ring in a position where it is not accessible through the plaster-ring when the lamp housing is in operative position, but when the lamp housing is removed from its mount, the power regulating instrumentality can be hinged into a position where it may be operated upon through the plaster-ring.

3,683,174

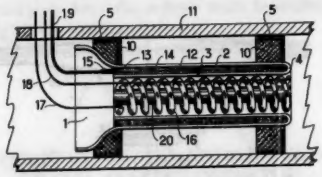
LIGHT SOURCE REFLECTOR SUPPORT

Bernard Fuchs, L'Hay-Les-Roses, and Christian Gary, Versailles, both of France, assignors to Compagnie Generale D'Electricite, Paris, France

Filed June 14, 1968, Ser. No. 737,126
Claims priority, application France, June 16, 1967, 110630
Int. Cl. F21v *7/14*; H01s *3/02*
U.S. Cl. 240—103 **6 Claims**

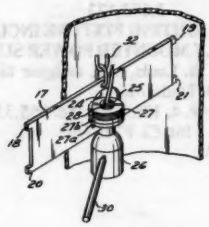
A tubular light source reflector for the optical pumping of solid-state lasers is provided with a mounting ring molded

directly on the outer surface of the reflector. A flexible plastic ring may be simultaneously molded around the mounting ring.



The present invention relates to a light source reflector, more particularly for the optical pumping of solid-state lasers.

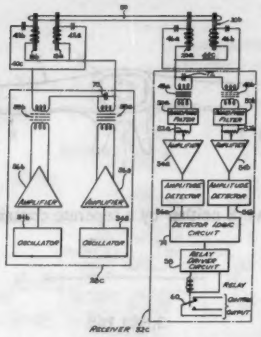
3,683,175
LAMP CONSTRUCTION
Arthur J. Wiltshire, 352 Dumbarton Blvd., Cleveland, Ohio
Filed Aug. 27, 1970, Ser. No. 67,503
Int. Cl. F21v 1/00
U.S. Cl. 240—108 R **3 Claims**



A lamp construction which includes a translucent lamp shade and a lamp socket fixture mounted therein. The lamp socket fixture is fixed to a cross brace and the cross brace is, in turn, fixed to the lamp shade. The cross brace is provided with end tabs which are received in slots provided in the lamp shade. According to one aspect of this invention, the cross brace is mounted in a vertical position in substantial alignment with the lamp socket fixture to minimize shadows on the lamp shade and to maximize cooling, convection air currents through the lamp shade to cool the lamp socket fixture.

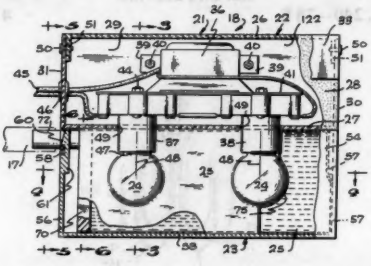
3,683,176
PRESENCE DETECTOR
George B. Crofts, 1917 N. Mountain Ave., Claremont, Calif.
Filed July 21, 1970, Ser. No. 56,807
Int. Cl. B61l 23/30
U.S. Cl. 246—40 **13 Claims**

Herein is described an apparatus for detecting the presence of a car within a section of railway track. The track section is defined by low impedance electrical connections between rails at opposite ends thereof, and the section is inductively coupled to transmitter and receiver units. In one embodiment, the transmitter unit operates in the audio frequency range and the proximity of a car is detected by a reduction in the received signal due to electromagnetic coupling of the metallic mass of the car to the track section. In another embodiment the transmitter operates in the ultrasonic frequency range and the presence of a car within the section is detected by a reduction in the received signal caused by the shunting effect of the wheels and axle of the car. In a third embodiment the transmitter unit applies a pair of signals at different frequencies, and the proximity of the metallic mass of the car is detected by a variation in the received amplitude of one of the signals, and



the shunting effect of the wheels-axle set is detected by a variation in the other signal.

3,683,177
STERILIZATION OF A FLUID BY ULTRAVIOLET RADIATION
Louis P. Veloz, 500 South Madison, Pasadena, Calif.
Filed June 30, 1970, Ser. No. 51,065
Int. Cl. H01j 37/00
U.S. Cl. 250—43 **20 Claims**

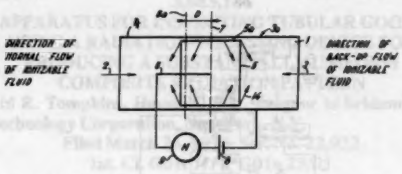


A device for sterilizing water or another fluid, including a flexible bag through which the fluid is pumped and formed of a material transparent to ultraviolet radiation, with the bag extending first along one side of an ultraviolet lamp or lamps and then being doubled back along their opposite sides; and with the bag being pressed against the lamps by the pressure of the fluid being treated in a manner causing an inner wall of the bag to conform approximately to the shape of the lamp or lamps and thereby enhance or optimize the delivery of radiation to the fluid.

3,683,178
APPARATUS FOR DETERMINING THE DIRECTION OF FLOW OF AN IONIZABLE FLUID
Vojtech Buran, Brno; Jaromir Kuba, Troubsko U Brna; Adolf Uncovsky, and Karel Zouhar, both of Brno, all of Czechoslovakia, assignors to Vyzkumny a vyvojovy ustav Zavodu vseobecneho strojirenstvi, Brno, Czechoslovakia
Continuation-in-part of Ser. No. 827,397, May 23, 1969, abandoned. This application Jan. 4, 1971, Ser. No. 103,780
Claims priority, application Czechoslovakia, May 21, 1968, 3696 68
Int. Cl. G01n 23/12
U.S. Cl. 250—43.5 FC **3 Claims**

An arrangement for determining the direction of flow of an ionizable gas along a prescribed axial path employs a conduc-

tive, open-ended ionization chamber positioned in the path of flow of the gas. An open-ended, toroidal source of ionization radiation is positioned concentrically within the chamber to ionize the gas flowing therethrough. A pair of spaced cylindrical electrodes are disposed concentrically within the chamber with their central axis planes respectively positioned on opposite sides of the central axial plane of the ionization source.



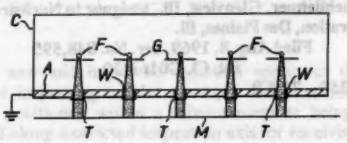
The ionization current generated when the gas is ionized is measured by a pair of meters which are respectively coupled between the individual electrodes and the common chamber wall. For any given direction of gas flow through the chamber, the meters will register different ionization current values, the sense of the difference being indicative of the direction of gas flow.

3,683,179

MEANS FOR IRRADIATING MATERIALS

John R. Norman, Hinxton Hall, Saffron Walden, Essex, England

Filed March 11, 1970, Ser. No. 23,524
Int. Cl. H01j *37/00*
U.S. Cl. 250—49.5 TE **1 Claim**



In electron irradiation of organic materials to cause chemical changes therein the material is subjected to at least five successive doses of electron radiation of substantially equal intensity, the material preferably being moved successively past at least five beams of electrons spaced apart along the direction of movement of the material.

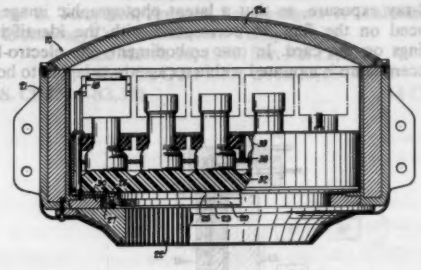
3,683,180

SCINTILLATION CAMERA WITH REMOVABLE SUBASSEMBLY

Ronald J. Martone, Cheshire; Peter G. Mueller, Guilford, and Richard J. Flis, Plantsville, all of Conn., assignors to Picker Corporation, White Plains, N.Y.

Filed June 16, 1969, Ser. No. 833,552
Int. Cl. G01t *1/20*
U.S. Cl. 250—71.5 S **6 Claims**

A gamma imaging camera with a scintillation crystal and a plurality of phototubes. A light pipe optically couples the crystal and the tubes. The light pipe has, at its output end, a plurality of truncated pyramids each associated with one of the phototubes. As disclosed, the walls of the pyramids are hexagonal in cross-sectional configuration and flare outwardly to intersect adjacent walls, thus providing a continuous field of view.



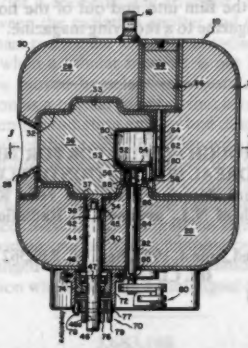
The disclosure also shows a lift-out detector head subassembly construction.

3,683,181

ATOMIC IRRADIATOR HAVING MEANS FOR ROTATING SAMPLES FOR UNIFORM EXPOSURE

Milton Packin, Livingston, and Bernard Seid, Ceder Grove, both of N.J., assignors to Radiation Machinery Corporation

Filed Oct. 16, 1967, Ser. No. 675,578
Int. Cl. G21h *5/00*
U.S. Cl. 250—52 **15 Claims**



A thick-walled housing of radioactive absorbing material has an enlarged cavity which contains a solid movable block. A radiation source compartment is centrally disposed within said housing and immediately adjacent said block. A radiation compartment is disposed within said block and can be moved into and out of alignment with the radioactive source. This compartment can also be moved into and out of alignment with an exterior access opening through the housing so that articles can be placed within the radiation compartment and subsequently moved to the interior of the housing and into alignment with the radiation source. The compartment has a movable turntable therein which permits the article to be uniformly exposed on all sides to the radiation source.

3,683,182

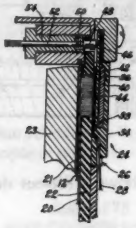
MARKING DEVICES FOR X-RAY FILM

Robert B. Farmer, Glenview, Ill., assignor to Katum Corporation, Wilmette, Ill.

Filed Sept. 11, 1969, Ser. No. 857,164
Int. Cl. H05g *1/28*
U.S. Cl. 250—67 **4 Claims**

The X-ray film is enclosed within a light-tight holding device, so arranged that the X-ray exposure is made with the

film therein. An electro-luminescent lamp in the form of a flat plate is mounted in the holding device, which has a light-trap slot for the insertion of an identification card between the lamp and the film. The lamp is energized in connection with the X-ray exposure, so that a latent photographic image is produced on the film, to correspond with the identifying markings on the card. In one embodiment, the electro-luminescent lamp is mounted within a cassette, adapted to hold



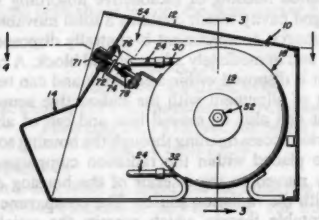
an X-ray film. The identification card is movable into direct engagement with the film. The cassette is provided with contacts whereby the lamp is connected to an energizing circuit when the cassette is mounted in its exposure position. In another embodiment, a fiber optic plate is provided between the identification card and the film to transmit an image of the identifying markings to the film. This construction makes it possible to feed the film into and out of the holding device, from a supply magazine to a receiving magazine.

3,683,183

A FLOW-THROUGH IRRADIATOR FOR THE EXTRA CORPOREAL IRRADIATION OF FLUID

Thomas A. Vizzini, Morris Plains, and Felix R. Grat, Lake Hiawatha, both of N.J., assignors to Radiation Machinery Corporation

Filed June 4, 1969, Ser. No. 830,362
Int. Cl. G01n *21/26*
U.S. Cl. 250—44 **14 Claims**



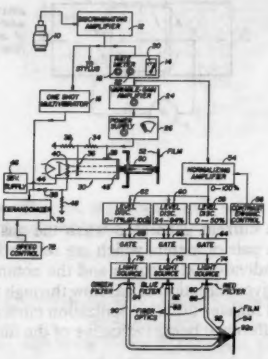
A flow-through irradiator for fluid comprising a radiation absorbing biological shield housing having a radioactive source therein, a non-linear conduit traversing the shield housing for passing a fluid therethrough in radiation receiving relation to the radioactive source, and a flexible radiation absorbing means movably interposed between the radioactive source and fluid to be irradiated to selectively vary the radiation dose rate received by fluid passing through the conduit.

3,683,184

SCINTILLATION RECORDING DEVICE FOR PRODUCING BOTH BLACK AND WHITE AND MULTI-COLOR PHOTOGRAPHIC RECORDS

Carl J. Brunnett, Mayfield Heights, and Donald C. Payne, Willoughby, both of Ohio, assignors to Picker Corporation, White Plains, N.Y.

Filed Aug. 15, 1967, Ser. No. 660,823
Int. Cl. G01t *1/20*
U.S. Cl. 250—71.5 S **9 Claims**



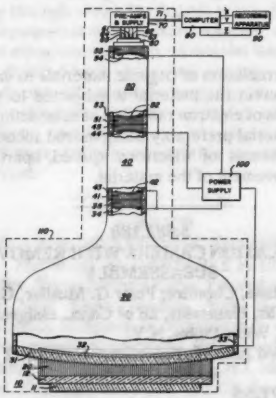
The output of a scintillation probe is connected to energize one or more level discriminators, which respond to different levels of radioactivity detected. Each level discriminator is connected to permit energization of a different colored light source, the light from which exposes a color-sensitive photographic film.

3,683,185

RADIATION IMAGING APPARATUS

Gerd Muehllehner, Glenview, Ill., assignor to Nuclear-Chicago Corporation, Des Plaines, Ill.

Filed Aug. 8, 1969, Ser. No. 848,595
Int. Cl. G01t *1/20*
U.S. Cl. 250—71.5 R **3 Claims**



An image intensifier type of gamma ray scintillation camera employing a relatively thick scintillation crystal at the input end for good efficiency in converting gamma rays into scintillations and a fast, position sensitive photodiode with computer

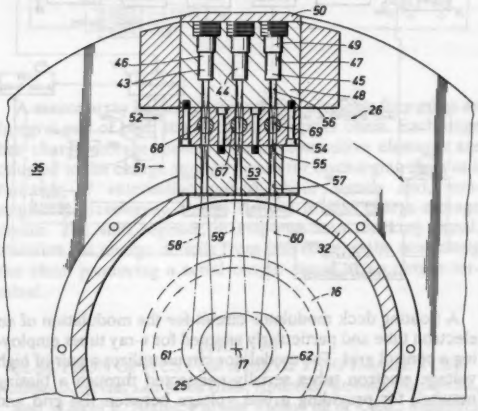
circuitry at the output end for producing coordinate electrical signals representing the centroid of the relatively large light spot striking the photodiode. Pulse height analysis is performed on the total sum signal from the photodiode to reject unwanted events manifested at the output of the photodiode, and appropriate ratio computing circuitry is employed to maintain a constant image size over a range of intensities of light spots striking the photodiode.

3,683,186

APPARATUS FOR INSPECTING TUBULAR GOODS USING A RADIATION-FOCUSSING DEVICE FOR PRODUCING A SUBSTANTIALLY UNIFORM COMPOSITE RADIATION PATTERN

David R. Tompkins, Houston, Tex., assignor to Schlumberger Technology Corporation, New York, N.Y.

Filed March 26, 1970, Ser. No. 22,932
Int. Cl. G01t *1/17*; G01n *23/05*
U.S. Cl. 250—83.3 D **29 Claims**



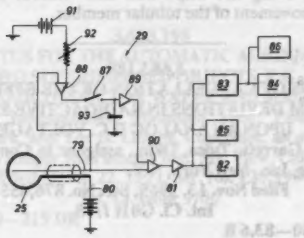
In the new and improved radiation apparatus disclosed herein for inspecting tubular goods, a radiation detector is coaxially positioned within a tubular member being axially translated along a selected inspection axis for receiving radiation from a uniquely-arranged radiation emitter facing the detector and rotating around the exterior of the tubular member. In the preferred embodiment disclosed herein, this unique radiation emitter includes an array of side-by-side radioactive sources of selected strengths respectively directed inwardly through laterally-spaced, generally-parallel focussing passages for producing individual sharply-defined radiation beams respectively having a transverse width substantially smaller than that of the active portion of the detector. The outer or flanking sources of the array are arranged in relation to the intermediate source so that the radiation beams of the two outer sources will be directed on opposite sides of the inspection axis and the radiation beam of the intermediate source will intersect the inspection axis. In this manner, lateral movements of the detector to one side or the other of the inspection axis will progressively bring the active portion of the detector into the radiation pattern produced by one of the flanking sources as the detector moves out of the radiation pattern of the intermediate source. Accordingly, by cooperatively selecting and positioning the sources in operative relation to one another and to the detector, a substantially constant radiation intensity will contact the detector when it is at any position within a selected boundary around the inspection axis so that random or erratic shifts of the detector within the moving tubular member will not affect the accuracy of the measurements being obtained.

3,683,187

METHODS AND APPARATUS FOR INSPECTING TUBULAR GOODS USING A CONTINUOUS SIGNAL CALIBRATING SYSTEM

David R. Tompkins, Houston, Tex., assignor to Schlumberger Technology Corporation, New York, N.Y.

Filed March 26, 1970, Ser. No. 22,935
Int. Cl. G01t *1/17*; G01n *23/08*
U.S. Cl. 250—83.3 D **14 Claims**



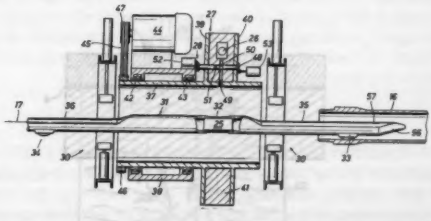
In the new and improved radiation apparatus disclosed herein for inspecting tubular goods, a radiation detector is coaxially positioned within a tubular member being axially translated along a selected inspection axis for receiving radiation from a radiation emitter facing the detector and rotating around the exterior of the tubular member. In the preferred embodiment disclosed herein, a unique radiation-attenuating device or shutter is cooperatively arranged to be normally interposed between the radiation emitter and the radiation detector to at least reduce the intensity of radiation imposed on the detector when a tubular member is not being inspected. The shutter is moved by selectively-operated controls to a second position as a tubular member that is to be inspected is placed between the radiation emitter and detector. In practicing the methods of the present invention with the disclosed apparatus, the shutter is uniquely arranged to cooperate with the detector circuitry for developing a comparison signal when the shutter is interposed between the radiation emitter and detector. The accuracy of this comparison signal is further assured by providing one or more clamping devices which are uniquely arranged for securing the radiation detector in a selected position when the comparison signal is developed.

3,683,188

APPARATUS FOR INSPECTING TUBULAR GOODS HAVING GUIDE MEMBERS TO FIX A DETECTOR IN THE CENTER OF THE TUBULAR GOODS

Gerald H. Hugonin, Houston, Tex., assignor to Schlumberger Technology Corporation, New York, N.Y.

Filed March 26, 1970, Ser. No. 22,934
Int. Cl. G01t *1/17*; G01h *23/02*
U.S. Cl. 250—83.3 D **9 Claims**



In the new and improved radiation apparatus disclosed herein for inspecting tubular goods, a radiation detector is adapted to be received within a tubular member being axially

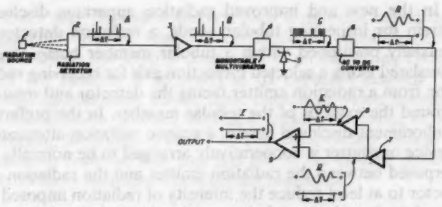
translated along a selected inspection axis for receiving radiation from a radiation emitter facing the detector and mounted in a body rotating around the exterior of the tubular member. To assure that the detector will remain coaxially positioned within a tubular member with a minimum of erratic movements in relation thereto, the detector is supported by fixed, depending slides which are adapted to be interchanged with other slides as required to correctly position the detector. The ends of the detector housing are uniquely shaped to facilitate the insertion of the detector housing into a tubular member advancing along the inspection axis without reducing the speed of movement of the tubular member.

3,683,189

MEANS OF CANCELLATION OF THE EFFECT OF RANDOM DEVIATIONS IN RADIOACTIVE EMISSION UPON AN ANALOG D.C. VOLTAGE

Sheyrl W. Garrett, Tulsa, Okla., assignor to Combustion Engineering, Inc., New York, N.Y.

Filed Nov. 13, 1969, Ser. No. 876,455
Int. Cl. G01t 1/18
U.S. Cl. 250—83.6 R **5 Claims**



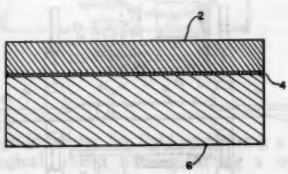
A system is disclosed in which a source and detector of radiation are positioned to sense a physical property, the detector generating electrical pulses proportional to the energy of the source impinging thereupon. The circuitry of the system amplifies and shapes the pulses, converts them into an analog D.C. signal with A.C. components proportional to the frequency of the pulses, and amplifies the D.C. through A.C. and operational amplifiers to cancel the A.C. component and produce a pure analog D.C. output signal.

3,683,190

TRITIUM AND DEUTERIUM IMPREGNATED TARGETS FOR NEUTRON GENERATORS

Donald Sutherland Stark, Baldock, England, assignor to National Research Development Corporation, London, England

Filed Feb. 13, 1969, Ser. No. 799,075
Claims priority, application Great Britain, Feb. 20, 1968, 8,321/68
Int. Cl. G21g 3/04
U.S. Cl. 250—84.5 **6 Claims**



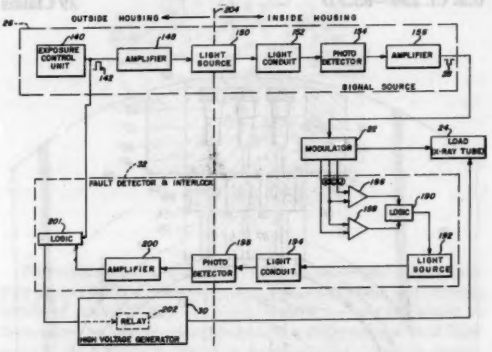
In rare-earth neutron targets, there is a tendency for the hydrided rare-earth film to flake off the metal substrate because of the formation of the brittle tri-hydrides. The present invention provides targets which alleviate this difficulty. In these novel targets there is located between the substrate and the hydrided rare-earth film an intermediate film of a further metal, the further metal being selected to diffuse readily into the metal of the first-mentioned film under solid-state conditions and form a solid solution or compound therewith, and to adhere well to the substrate, and being sufficiently thin not to reduce substantially the absorption of hydrogen by the first-mentioned film by dilution of the first-mentioned film. Suitable intermediate films include nickel and gold.

3,683,191

MODULATOR SYSTEM

Robert K. MacLachlan, Stratford, Conn., and Derek Chambers, Framingham, Mass., assignors to Machlett Laboratories, Incorporated, Springdale, Conn.

Filed May 18, 1970, Ser. No. 38,276
Int. Cl. H05g 1/22
U.S. Cl. 250—93 **4 Claims**



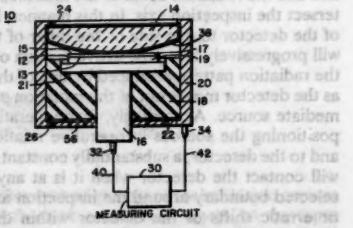
A floating deck modulator circuit for the modulation of an electron tube and particularly adapted for x-ray tubes employing a control grid. The modulator circuit utilizes a pair of high voltage electron tubes serially connected through a biasing network for providing a bias voltage between the grid and cathode of the tube. A single pulsing, or keying, circuit is directly connected to one of the electron tubes and coupled to the other electron tube by a transformer which insulates the circuit from high voltage. The modulator circuitry is adapted to be enclosed within an x-ray tube housing, and coupling of the modulation circuitry through the housing to a remote control unit is provided by a modulated light beam which accomplishes coupling across a high difference of potential.

3,683,192

METHOD AND APPARATUS FOR LIGHT DETECTOR FABRICATION WITHOUT BRAZING

David F. Jacobs, 5764 Clark Ave., Bethel Park, Pa.

Continuation of Ser. No. 807,747, March 17, 1969, abandoned. This application March 2, 1971, Ser. No. 120,348
Int. Cl. H01j 39/12
U.S. Cl. 250—216 **2 Claims**



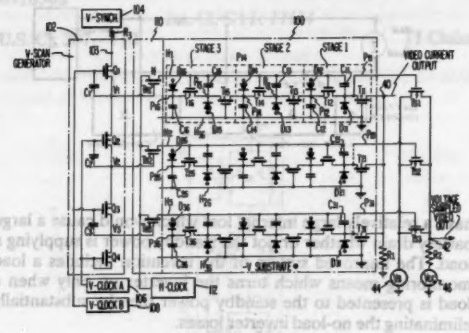
This invention is a light detector assembly utilizing components maintained in operational relationship by compression assembly and without the use of mechanical bonding.

3,683,193

BUCKET BRIGADE SCANNING OF SENSOR ARRAY

Paul Kessler Weimer, Princeton, N.J., assignor to RCA Corporation

Filed Oct. 26, 1970, Ser. No. 83,923
Int. Cl. H01j 39/12; H03k 3/42, 21/00
U.S. Cl. 250—209 7 Claims



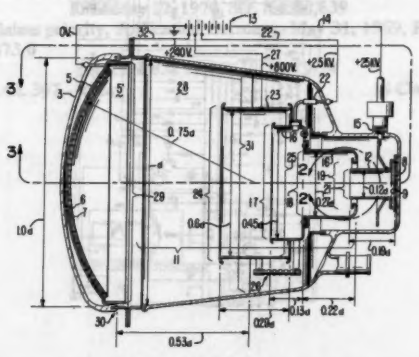
A sensor array having photosensitive elements formed as an integral part of each stage of a shift register chain. Each stage has charge storage means. The photosensitive elements are coupled to the charge storage means for discharging them as a function of externally applied photo signals and, consequently, developing charge deficits in said charge storage means. The shift register, in response to a clocking signal, transfers the charge deficits from one stage to the next along the chain producing a serial output signal at an output terminal.

3,683,194

ELECTRON OPTICS FOR A MINIFYING IMAGE TUBE

Nathan D. Levin, Los Altos Hills; Andreas Niewold, Sunnyvale, and Wilfrid F. Niklas, Portola Valley, all of Calif., assignors to Varian Associates, Palo Alto, Calif.

Filed Oct. 3, 1969, Ser. No. 863,508
Int. Cl. H01j 31/50
U.S. Cl. 250—213 VT 4 Claims



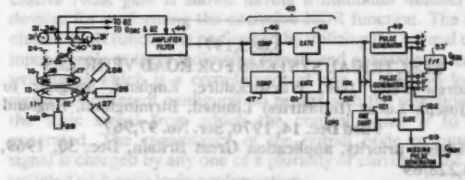
A minifying image tube, such as an X-ray converter or image intensifier tube, is disclosed employing a curved photocathode for converting a photon image into an electron image. A flat image converter screen is provided for converting the minified electron image into an optical output image. An electrode structure is disposed between the photocathode and the flat converter screen for accelerating and focusing the electron image upon the converter screen. The electrode structure includes a plurality of coaxially aligned axially spaced cylindrical electrodes of decreasing diameter taken in the direction from the photoemitter toward the converter screen. The final or anode electrode projects into a constricted electron exit aperture in the next preceding electrode structure in order to shape the equipotentials at the entrance of the anode such as to obtain uniform resolution of the electrode image focused upon the flat converter screen over substantially the entire area of the converter screen.

3,683,195

APPARATUS FOR THE AUTOMATIC ALIGNMENT OF TWO SUPERIMPOSED OBJECTS, E.G. A SEMICONDUCTOR WAFER AND MASK

Karl-Heinz Johannsmeier, Mountain View; Paul E. Stoft, Menlo Park, and Tor G. Larsen, Cupertino, all of Calif., assignors to Kasper Instruments Inc., Mt. View, Calif.

Filed March 22, 1971, Ser. No. 126,597
Int. Cl. G08c 9/06
U.S. Cl. 250—219 DR 16 Claims



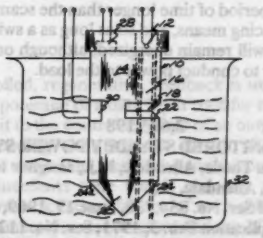
An apparatus for automatically aligning a semiconductor wafer with a mask in the manufacture of integrated circuit devices is disclosed. The mask and wafer are each provided with alignment patterns, the wafer pattern cooperating with the mask pattern in unique visual manner to signify alignment. A scanning means is provided for automatically scanning the pattern areas and producing output signals indicative of the relative position of the wafer and mask patterns. Logic circuitry is provided for operating in response to said scan output signals to compute formulas responsive to any misalignment, said formulas being utilized to produce control signals for driving motor means to produce relative movement between the mask and wafer to bring them into alignment. Several separate alignment cycles are provided, if needed, for zeroing in on finalized alignment. A tolerance selection means is provided for permitting a variation in final alignment tolerance.

3,683,196

DIFFERENTIAL FLUID LEVEL DETECTOR

Robert E. Obenhaus, South Easton, Mass., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Nov. 27, 1970, Ser. No. 93,094
Int. Cl. G02b 5/14
U.S. Cl. 250—227 12 Claims



A differential fluid level detector is disclosed for sensing the presence of a fluid medium at first and second preselected

levels. The detector includes a light emitter, a longitudinally extending light transmitting body of a predetermined length in excess of the difference between the first and second preselected levels in optical communication with the light emitter for transmitting emitted light along a longitudinal light emission path, a light refracting means in communication with the light emitting means through the light transmitting body and at least one light sensor. The light refracting means includes first and second light refracting body portions which are respectively disposed at longitudinally spaced positions along the light transmitting body corresponding to the first and second preselected levels and each including a light refracting body portion bounded at least in part by a surface portion at an oblique angle with respect to the longitudinal light emission path. The respective surface portions define first and second external reflective interfaces adapted to communicate with the fluid to effect transmission of the emitted light into the fluid when each respective interface is in communication with the fluid and to effect internal reflection of the light when each respective interface is not in communication with the fluid along a predetermined light reflection path through the light transmitting body. The light sensor is disposed in optical communication with the predetermined light reflection path.

3,683,197

ELECTRICAL SYSTEMS FOR ROAD VEHICLES

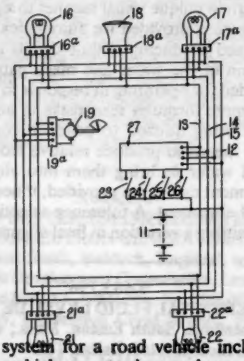
Andrew Peter Ives, Warwickshire, England, assignor to Joseph Lucas (Industries) Limited, Birmingham, England

Filed Dec. 14, 1970, Ser. No. 97,967

Claims priority, application Great Britain, Dec. 30, 1969, 63,228/69

Int. Cl. H02j 1/08

U.S. Cl. 307—10 R **1 Claim**



An electrical system for a road vehicle includes a signal producing means which operates in a cycle to scan a number of switches in turn. If any switch is closed, a signal is supplied to a feed line, and this signal operates a load which is to be controlled by the switch which is closed. The load remains energized for a period of time longer than the scanning time of the signal producing means, and so as long as a switch remains closed, its load will remain energized, although only one feed line is necessary to conduct power to the load.

3,683,198

LOAD MONITORED STANDBY POWER SYSTEM

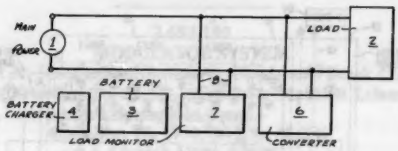
Herbert William Thode, Allendale, N.J., assignor to Regulators Incorporated, Allendale, N.J.

Continuation of Ser. No. 834,738, June 19, 1969, abandoned. This application Feb. 3, 1971, Ser. No. 112,449

Int. Cl. H02j 7/00

U.S. Cl. 307—66 **12 Claims**

A system for turning a standby power supply on and off in which the standby power is only activated upon a demand from the load being supplied. The system is particularly useful, for example, in alternating current systems where the standby power includes an inverter for converting a direct current battery source to an alternating voltage. Inverters of this type



have a relatively large internal loss which would cause a large battery drain whether or not the standby power is supplying a load. The improved system of the invention includes a load monitoring means which turns the inverter on only when a load is presented to the standby power thereby substantially eliminating the no-load inverter losses.

3,683,199

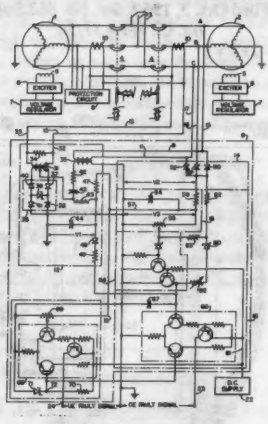
OVER- AND UNDEREXCITATION PROTECTION CIRCUIT FOR ALTERNATING CURRENT POWER SYSTEMS

William W. Billings, and Wendell Calfee, both of Lima, Ohio, assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Sept. 14, 1970, Ser. No. 71,925

Int. Cl. H02j 1/10

U.S. Cl. 307—87 **3 Claims**

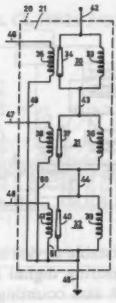


Polyphase generators operating in parallel are provided with a circuit to protect against over or under excitation of any one generator. The circuit comprises means for developing a direct voltage proportional to the differential reactive current of each generator and also means for developing a direct voltage proportional to the rectified phase voltages, such voltages being summed and the result compared with a reference.

3,683,200
CIRCUIT ARRANGEMENT COMPRISING A PLURALITY OF SEPARATELY ENERGIZABLE SUPER-CONDUCTIVE COILS

Jan Carel Francken, Van Houtenlaan, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Nov. 16, 1970, Ser. No. 89,825
Claims priority, application Netherlands, Dec. 5, 1969, 6918302
Int. Cl. G11c *11/44*
U.S. Cl. 307—113 11 Claims



A superconductor circuit comprising a plurality of superconductor coils each of which is shunted by a superconductor switch to form a plurality of closed loop circuits. The circuits are series connected between the input terminals of a current source. Selective operation of the shunt switches in combination with an adjustment of the supply current permits one to set up individual persistent currents of different magnitudes in each closed loop circuit. This construction requires only two current leads to supply all of the persistent currents for the coils thereby reducing thermal leakage between the superconductive container and the environment.

3,683,201
LOGIC INTERCONNECTIONS

Tegze Haraszti, Rollwagstr. 4, 71 Heilbronn, Germany

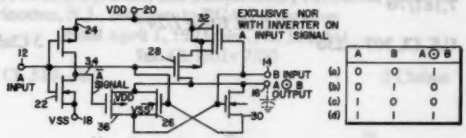
Filed May 12, 1970, Ser. No. 36,639
Claims priority, application Germany, May 31, 1969, P 19 27 873.0
Int. Cl. H03k *19/08, 19/12, 19/34*
U.S. Cl. 307—205 14 Claims

A dynamic logic interconnection operated by clock pulses and comprising a component which is operated as a diode having two electrodes and at least one active circuit element, such as a transistor, having a gate and two other electrodes and a controlled current path, one electrode of the component operated as a diode being connected to the controlled current path from one electrode of the active circuit element.

3,683,202
COMPLEMENTARY METAL OXIDE SEMICONDUCTOR EXCLUSIVE NOR GATE

Bernard H. Schmidt, Jr., Mesa, Ariz., assignor to Motorola, Inc., Franklin Park, Ill.

Filed Dec. 28, 1970, Ser. No. 101,734
Int. Cl. H03k *19/08, 19/34*
U.S. Cl. 307—205 20 Claims

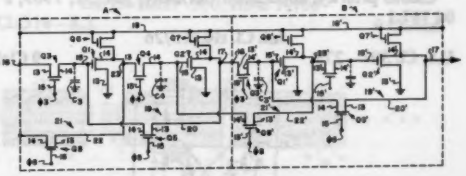


A complementary metal oxide semiconductor (CMOS) exclusive NOR gate is shown having a minimum number of devices for performing the exclusive NOR function. The exclusive NOR function is performed by utilizing the normal two input signals as logic indicating signals and generating a control signal which is a complement of one of the two logic signals. A different configuration results with the selection of the logic signal from which the control signal is to be generated. The capacitance of the output node or output signal is charged by any one of a plurality of current paths associated with each logic configuration.

3,683,203
ELECTRONIC SHIFT REGISTER SYSTEM

Kent F. Smith, Salt Lake City, Utah, assignor to General Instrument Corporation, Salt Lake City, Utah

Filed Sept. 8, 1969, Ser. No. 855,992
Int. Cl. G11c *19/00*
U.S. Cl. 307—221 C 12 Claims



A controlled, regenerative, feedback is utilized to connect the output potential of a data input transfer stage of a shift register circuit to the control terminal of an output transfer stage of a preceeding shift register circuit that is connected therewith in series. The feedback permits control by expanded pulses of indefinite time length and any polarity, thereby greatly increasing the usefulness of such shift registers. With this arrangement the manufacture and use of identical, single-stage circuit modules that may be connected in series for greater flexibility in designing electronic shift register systems is greatly simplified.

3,683,204

Patent Not Issued For This Number

3,683,205

LOGARITHMIC CONVERTER

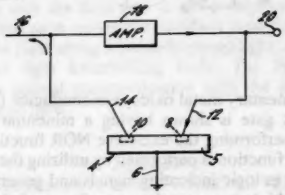
Eliot Patrick Fowler, Swanage, and Richard William Greaves, Blandford, both of England, assignors to United Kingdom Atomic Energy Authority, London, England

Filed Feb. 16, 1971, Ser. No. 115,649

Claims priority, application Great Britain, Feb. 13, 1970, 7,161/70

Int. Cl. G06g 7/24

U.S. Cl. 307—230 3 Claims



A semi-conductor device comprises an n-type substrate carrying a base electrode, and two diffused-in regions of p-type material which respectively carry an emitter electrode and a collector electrode. The construction is in the form of a lateral transistor and the collector electrode is preferably arranged to be relatively remote from the emitter electrode so as to give a very low collector current gain. Under these conditions, the emitter-base voltage of the device is dependent on the natural logarithm of the input current to the collector electrode over a wide range. An amplifier keeps the collector-base voltage low compared with the emitter-base voltage.

3,683,206

ELECTRICAL STORAGE ELEMENT

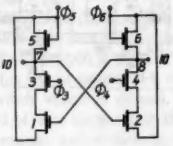
Tegze Haraszti, Heilbronn, Germany, assignor to Licenta, Patent-Verwaltrungs-G.m.b.H., Frankfurt am Main, Germany

Filed Jan. 29, 1970, Ser. No. 6,882

Claims priority, application Germany, Jan. 31, 1969, P 19 04 787.1

Int. Cl. H03k 3/26

U.S. Cl. 307—279 9 Claims



An electrical storage element comprises two controllable elements, such as field effect transistors, controllable into conducting or cut off positions in phase opposition and in dependence on the state of charge of storage capacitances, one positioned in parallel with the control path of each controllable element, charging and discharging circuits for each storage capacitance, these circuits having separate inputs to which clock pulses are applied cyclically so as to charge both capacitances and then discharging one of the capacitances depending on its original state of charge.

3,683,207

PRESETTABLE SELF-CORRECTING STAIRCASE COUNTER

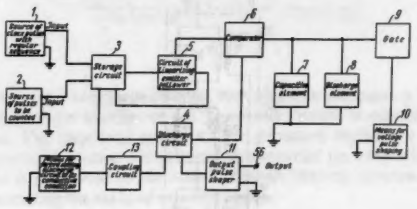
Leonid Semenovich Sitnikov, ulitsa Trudovykh rezervov, 56, kv. 12; Lev Lazarevich Utyakov, ulitsa Trudovykh rezervov, 56, kv. 22, and Alexandr Grigorievich Skorik, pereulok Zapadny, 3/2, kv. 65, all of Kiev, U.S.S.R.

Continuation of Ser. No. 863,030, Sept. 29, 1969, abandoned. This application Oct. 20, 1970, Ser. No. 82,546

Claims priority, application U.S.S.R., March 21, 1966, 1062319; July 15, 1966, 1088209

Int. Cl. H03k 25/02

U.S. Cl. 307—225 10 Claims



A pulse-position multistable device to be utilized in automation, counting and measuring digital instruments for storing multivalued information and counting electrical pulses, said device being based on a counter with a storage capacitor including no trimming elements, wherein a comparator (reference) voltage is developed by the very circuit of the device, the value of the later voltage being changed in the process of operation, thus compensating for the change of the parameters of the circuit components owing to which the range of retaining a desired value of the scaling factor is widened.

3,683,208

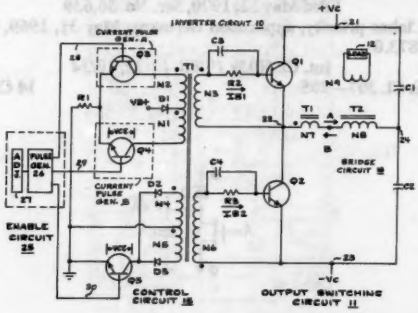
POWER SUPPLY CIRCUIT ARRANGEMENT UTILIZING REGENERATIVE CURRENT FEEDBACK

James H. Burens, Worthington, Ohio, assignor to North Electric Company, Galion, Ohio

Filed Dec. 23, 1970, Ser. No. 101,011

Int. Cl. H03k 3/30

U.S. Cl. 307—296 12 Claims



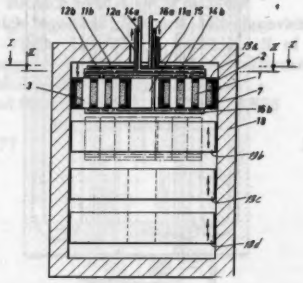
A power supply circuit having an input circuit over which signals at logic levels control a pair of current pulse generators to alternately supply base current over a multi-winding current transformer to the base elements of a pair of output switching transistors, each of which is alternately turned on to permit current to flow through an output transformer winding and also through a feedback winding of the current transformer to supply regenerative base current for driving the ef-

fective one of the output transistors into saturation; a further control transistor is responsive to logic level signals to control the turnoff of each output transistor after a timed interval by shorting a winding on the current transformer.

3,683,209
REACTOR CORE FOR THERMIONIC NUCLEAR REACTOR

Franz Gross, Neckargemund, and Rudolf Krapf, Leimen, both of Germany, assignors to Brown, Boveri & Cie A.G., Mannheim-Kafertal, Germany

Filed Dec. 29, 1967, Ser. No. 694,592
Claims priority, application Germany, Jan. 3, 1967, B 90576
Int. Cl. H02n 3/00
U.S. Cl. 310—4 **5 Claims**

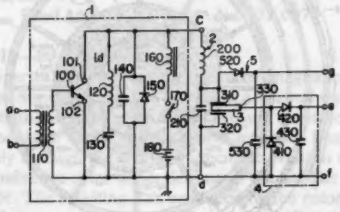


This invention relates to a reactor core for a nuclear reactor, particularly for a "fast" type nuclear reactor, provided with nuclear fuel, for direct conversion into electrical energy of released heat produced by nuclear fission. The heat-to-electricity conversion takes place by means of thermionic converters having an inner-positioned collector and an outer-positioned emitter. The nuclear fuel is subdivided into sub-critical discs whose reactivity is influenced by a change in their mutual distance from each other; and the thermionic converter is imbedded in these individual discs. Additional controls in the form of control rods may also be provided to change the reactivity of the reactor core.

3,683,210
HIGH VOLTAGE GENERATING APPARATUS UTILIZING PIEZOELECTRIC TRANSFORMERS

Takehiko Kawada, Yokohama, Japan, assignor to Denki Onkyo Co. Ltd.

Filed April 13, 1970, Ser. No. 27,856
Int. Cl. H01v 7/00
U.S. Cl. 310—8.1 **3 Claims**

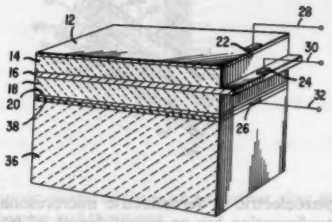


In a high voltage generating apparatus utilizing a piezoelectric transformer having two driving electrodes and an output electrode, a signal of a definite frequency is applied across the driving electrodes via an inductance element, a capacitor is connected in parallel with the driving electrodes to form a resonance circuit together with the inductance element and the resonance frequency of the resonance circuit is made substantially equal to the natural resonance frequency of the piezoelectric transformer which is equal to an odd higher harmonic of the signal frequency.

3,683,211
FERRO-ELECTRIC TRANSFORMERS WITH MEANS TO SUPRESS OR LIMIT RESONANT VIBRATIONS

Stuart Stanley Perlman, and Joseph Henry McCusker, both of Princeton, N.J., assignors to RCA Corporation

Filed April 1, 1971, Ser. No. 131,341
Int. Cl. H01v 7/00
U.S. Cl. 310—8.2 **5 Claims**

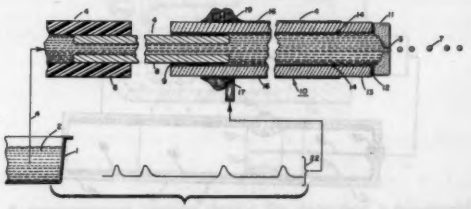


Mechanically coupled ferroelectric capacitors are surface mounted on a rigid substrate so as to suppress resonant modes of vibration and to limit non-resonant modes of vibrations to those which result in the same polarity output signal. The mechanical vibrations caused in one capacitor (the input capacitor) by an input signal mechanically couples to the other capacitor (the output capacitor) and induces an output signal therein due to the piezoelectric properties of the dielectric. The structure is sandwich-like and consists of a first electrode, a ferroelectric body, a common electrode, a second ferroelectric body and a second electrode. The second electrode is preferably mounted on a rigid substrate.

3,683,212
PULSED DROPLET EJECTING SYSTEM

Steven I. Zoltan, Shaker Heights, Ohio, assignor to Clevite Corporation

Filed Sept. 9, 1970, Ser. No. 70,838
Int. Cl. H01v 7/00; H04r 17/00
U.S. Cl. 310—8.3 **6 Claims**



An electro-acoustic transducer is coupled to liquid in a conduit which terminates in a small orifice. Preferably, the acoustic impedance of the supply portion of the conduit is large compared with the acoustic impedance of the orifice. The liquid is under small or zero static pressure. Surface tension at the orifice prevents liquid flow when the transducer is not actuated. An electrical pulse with short rise time causes sudden volume change at the transducer, thereby creating an acoustic pressure pulse having sufficient amplitude to over-

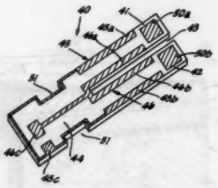
come the surface tension at the orifice and eject a small quantity of liquid therefrom. The expelled liquid is replaced by forward flow of liquid in the conduit under the influence of capillary forces in the orifice.

3,683,213

MICRORESONATOR OF TUNING FORK CONFIGURATION

Juergen H. Staudte, Anaheim, Calif., assignor to Statek Corporation, Orange, Calif.

Filed March 9, 1971, Ser. No. 122,313
Int. Cl. H01v 7/00
U.S. Cl. 310—9.6 35 Claims



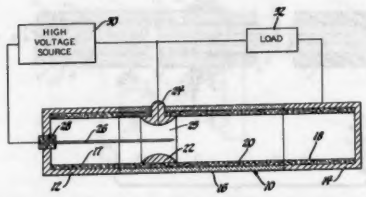
A piezoelectric or ferroelectric microresonator of tuning fork configuration has an overall length of from about 100 mils to 500 mils, and a width of from about 15 mils to about 50 mils. In a typical embodiment, the microresonator includes a thin film electrode extending across the bottom surface of both tines, and on the top surface, a first set of electrodes extending along the outer tine edges and a second set of electrodes extending along the inner tine edges adjacent the tuning fork slot. The microresonator stem portion may be attached to a substrate by means of a eutectic pedestal or other mounting. Metal film weights at the tine ends may be used for adjusting the frequency of the microresonator, and the tines themselves may be tapered for improved temperature coefficient characteristics. Various other microresonator configurations are disclosed, as is a method for fabricating the tuning forks microlithographically.

3,683,214

HEAT PIPE ELECTROGASDYNAMIC CONVERTER

Charles B. Leffert, Troy, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed May 25, 1970, Ser. No. 40,044
Int. Cl. H02n 3/00
U.S. Cl. 310—10 4 Claims



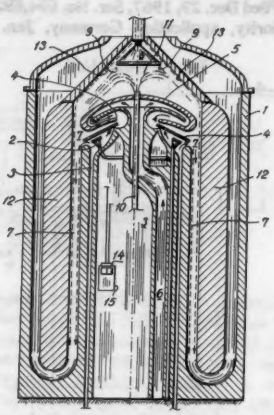
For converting heat to electrical energy, a heat pipe is fitted with attractor, collector and wire electrodes to form an electrogasdynamic converter within the heat pipe. In one embodiment, a high voltage is supplied across the attractor and wire electrodes to produce a corona for ionizing the vapor within the heat pipe. In another, Uranium–235 in the heat pipe subject to a neutron flux produces fission fragments which ionize the vapor by bombardment.

3,683,215

METHOD AND AN APPARATUS FOR THE PRODUCTION OF HEAT AND PRESSURE ENERGY

Mita Maria Gudmand-Hoyer, Ballerup, Denmark, assignor to Dan-Fire-Energy ved Mita Gudmand-Hoyer, Ballerup, Denmark

Filed March 15, 1971, Ser. No. 124,568
Claims priority, application Denmark, March 16, 1970, 1296
Int. Cl. H02n 4/00
U.S. Cl. 310—11 9 Claims



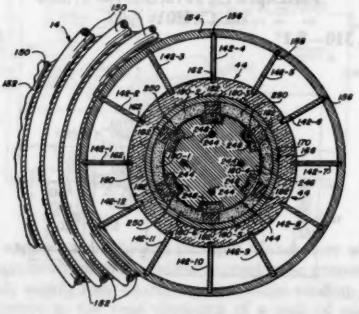
A method for the production of heat- and pressure-energy, by the use of a burner having a refractory perforated screen that on one side is contacted by the secondary air and on the other side by the primary combustion air, together with the ignited fuel, and an apparatus for carrying out the method, and more specifically to a magnetohydro-dynamic generator, for the production of electricity.

3,683,216

INERTIAL ENERGY STORAGE APPARATUS AND SYSTEM FOR UTILIZING THE SAME

Richard F. Post, Walnut Creek, Calif., assignor to Darrell E. Williams and T. Kenneth Fowler, Walnut Creek, Calif., part interest to each

Filed Feb. 24, 1971, Ser. No. 118,227
Int. Cl. H02k 7/02
U.S. Cl. 310—67 19 Claims



Inertial energy storage apparatus having two contrarotating rotors the fellies of which include a number of thin rings of

glass or embedded fiber composite material supported by elastic support means so that the radial separations between adjacent rings produced by centrifugal force do not cause failure of the rotors by mechanical rupture of the ring support means. The materials of the rings are selected from those glasses or composite materials for which the modulus U_o, that is the ratio of the maximum tensile strength of the material to twice its density, exceeds 300 Joules per gram. The rotors have alternator-motors in their hubs, by means of which they are brought to speed, and by means of which the inertial energy stored in them is extracted in the form of variable-frequency alternating output voltage. This output voltage is converted by a solid-state cycloconverter to alternating current of selectively variable frequency by means of which to power, for instance, the three-phase, squirrel-cage wheel motors of a non-pollution-producing automotive vehicle.

3,683,217

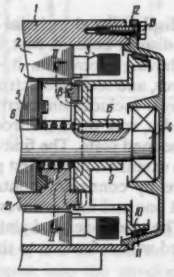
BRAKE INDUCTION MOTOR

Viktor Iosifovich Agalakov; Eduard Mitrofanovich Guselnikov, and Viktor Gavrilovich Smaikin, all of Tomsk, U.S.S.R., assignors to Spetsialnoe Konstruktorskoe Bjuro Elektromashinostroenia, Tomsk, U.S.S.R.

Filed March 29, 1971, Ser. No. 128,858

Int. Cl. H02k *7/102*

U.S. Cl. 310—77 **3 Claims**



The electric motor according to the invention is characterized in that the additional core of the rotor is made of radially arranged metal plates fastened to one another by a non-magnetic alloy.

The motor has increased reliability in service and enables the use of simplified techniques in the manufacture and assembly of the additional rotor core.

3,683,218

ROTARY ELECTRICAL DEVICE

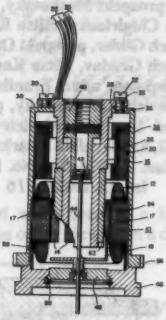
Charles E. West, Bryn Mawr, Pa., assignor to Harowe Servo Controls, Inc.

Filed Aug. 16, 1971, Ser. No. 172,097

Int. Cl. H02k *7/04*

U.S. Cl. 310—80 **11 Claims**

A low inertia synchro having a central magnetic core, a magnetic stator encircling the core, and a skewed conductive rotor cup in the air gap between the core and the stator. When a polyphase stator winding is energized, magnetic flux extends transversely through the air gap inducing current in the electrically conductive rotor dependent upon the angular position of the rotor. The resulting flux produced by the rotor current in turn induces a current in a single phase winding encircling the core to indicate the position of the rotor cup. The voltage null across the single phase winding may be adjusted through the cocking of the core with respect of the stator axis by tightening or loosening screws which extend through a flange on the core and abut or engage the synchro housing so as to alter the air gap between the core and the stator. The synchro may then be adjusted for angular accuracy by angularly adjusting an eccentric sleeve of the core to further alter the air gap between the core and the stator.



3,683,219

MEASUREMENT-SENSING DEVICE FOR DETERMINING A ROTATIONAL SPEED OR ROTATIONAL SPEED CHANGE, PREFERABLY OF VEHICLE WHEELS

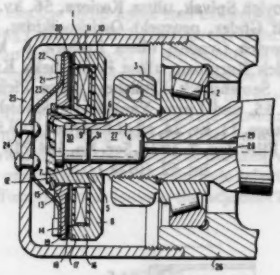
Werner Kruse, Stuttgart-Wangen, Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart, Unterturkheim, Germany

Filed Dec. 8, 1970, Ser. No. 96,171

Claims priority, application Germany, Dec. 10, 1969, P 19 61 846.3

Int. Cl. H02k *17/42*

U.S. Cl. 310—168 **20 Claims**

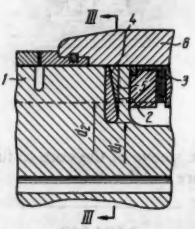


A measurement sensing device for detecting a rotational speed or rotational speed change, particularly of vehicle wheels, which essentially consists of a rotor and of a stator constructed as magnet and equipped with an annular coil, whereby an A.C. voltage proportional to the rotational speed is induced in the stator by the rotation of the rotor; the rotor and stator are thereby so combined into a structural unit that the rotor is so rotatably supported relative to the stator at the latter or at a part connected therewith that during operation no changes in radial or axial spacing between rotor and stator occur.

3,683,220
ROTOR FOR AN ELECTRICAL MACHINE

Boris Leonidovich Konovalov, 603 mikroraion, I, kv. 346; Vasily Semenovich Kildishev, ulitsa Plekhanovskaya, 41/43, kv. 55; Vadim Borisovich Kaplunov, ulitsa Bairona, 140/34, kv. 45; Vladimir Ivanovich Tokarev, ulitsa 2 Pyatiletki, 23, kv. 35; Boris Volkovich Spivak, ulitsa Kosiora, 56, kv. 55; Boris Ilich Byaly, prospekt Moskovsky, 210/3, kv. 66; Alexandr Abramovich Chigirinsky, ulitsa Kuibysheva, II, kv. 8; Evgeny Khaimovich Glider, prospekt Ordzhonikidze, 18, kv. 55; Oleg Borisovich Gradov, ulitsa Kosiora, 6, kv. I; David Bentsionovich Karpman, ulitsa Frantisheka Krala, 49, kv. 54; Pavel Yakovlevich Kartashevsky, prospekt Moskovsky, 35/I, kv. 22, and Ivan Yakovlevich Cheremisov, bulvar Ivana Korkacha, 2, kv. 81, all of Kharkov, U.S.S.R.

Filed Jan. 8, 1971, Ser. No. 104,923
Int. Cl. H02k 3/16
U.S. Cl. 310—183 3 Claims



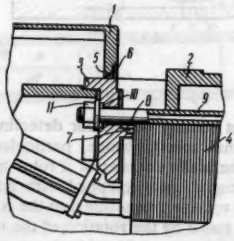
The present invention relates to electrical machines, and more specifically to rotors with dampers for turbo-alternators.

The invention resides in that in an electrical-machine rotor the dampers are made of a high-conductance material, electrically connected to the rotor core, have teeth of the same shape as the teeth on the rotor core and located in radial annular grooves which are deeper than the slots for the field winding.

3,683,221
STATOR OF AN ELECTRIC MACHINE

Boris Leonidovich Konovalov, 603 mikroraion, 1, kv. 346; Boris Volkovich Spivak, ulitsa Kosiora, 56, kv. 55; Evgeny Khaimovich Glider, prospekt Ordzhonikidze, 18, kv. 55; Oleg Borisovich Gradov, ulitsa Kosiora, 6, kv. 1; David Bentsionovich Karpman, ulitsa Frantisheka Krala, 49, kv. 54; Vasily Semenovich Kildishev, ulitsa Plekhanovskaya, 41/43, kv. 55, and Lazar Yankelevich Stanislavsky, ulitsa Mayakovskogo, 11, kv. 24, all of Kharkov, U.S.S.R.

Filed Jan. 7, 1971, Ser. No. 104,719
Int. Cl. H02k 1/18
U.S. Cl. 310—258 5 Claims



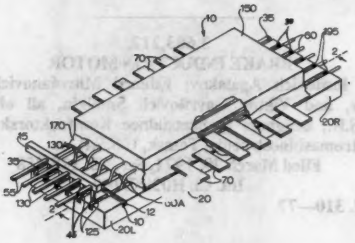
The present invention relates to electric machines and in particular, to gas filled stators of electric machines.

The concept of the invention consists in that the stator of the electric machine comprising end pieces and a middle section with a core compressed with bracing ribs and pressure flanges is designed so that the end pieces of the stator are joined to the middle section with the use of the pressure flanges of the stator core.

3,683,222
DISPLAY PANEL HAVING ELECTRODE REGISTRATION SUPPORT AND CONNECTION MEANS

Bernard Caras, Princeton, N.J., assignor to Burroughs Corporation, Detroit, Mich.

Filed Aug. 24, 1970, Ser. No. 66,383
Int. Cl. H01j 5/48
U.S. Cl. 313—51 14 Claims

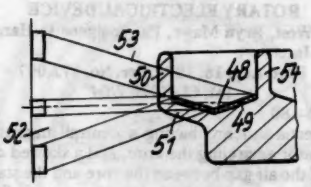


The illustrated display panel includes a matrix of communicating gas-filled display cells. A first layer includes an enlarged first plate having grooves in it, with first electrodes seated in the grooves, and second electrodes supported across them. A second layer includes an apertured plate seated on the second electrodes, with third electrodes positioned on the top surface of the second plate. The first electrodes residing in the grooves in one extension of the first plate are exposed and are accessed there by connector contacts. The third electrodes are fitted at one end into grooves in another extension of the first plate. The electrodes and plates forming the device may also be aligned with reference to the grooves in the base plate.

3,683,223
X-RAY TUBE HAVING A RAY TRANSMISSION ROTARY ANODE

Kurt Dietz, Erlangen, Germany, assignor to Siemens Aktiengesellschaft, Erlangen, Germany

Filed Dec. 5, 1969, Ser. No. 882,555
Claims priority, application Germany, Dec. 16, 1968, P 18 14 882.8
Int. Cl. H01j 35/10, 35/26
U.S. Cl. 313—60 7 Claims



An X-ray apparatus has an X-ray tube situated in a cover screening the rays. The effective focal point of the X-ray tube is located behind a ray transmitting opening in the cover,—the ray outlet window,—upon a thin layer of difficultly fusible material which itself is carried by an anode body made of ray transmitting material. The present invention is particularly characterized in that this layer is constructed as the ray transmitting anode in that at least parts of its upper surface and of

its lower surface lying upon the transmitting supporting material of the anode, are directed toward the ray outlet window and in that the thickness of the layer at least approximately corresponds to the depth of penetration of electrons into the material of the layer at the expected highest acceleration voltage.

3,683,224

LOW DEPTH CATHODE RAY TUBES

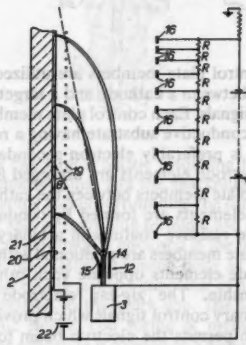
Peter Gordon Lea, Seal, near Sevenoaks, Kent, England, assignor to The Rank Organisation Limited, London, England

Filed May 5, 1969, Ser. No. 821,670

Claims priority, application Great Britain, May 13, 1968, 22,558/68

Int. Cl. H01j *29/74, 29/82*

U.S. Cl. 313—78 **10 Claims**



A cathode ray tube has an evacuated shallow envelope provided with a flat screen, and an electron gun is arranged to direct an electron beam into the envelope from one edge thereof in a direction which is substantially parallel to the plane of the screen. The beam is deflected by controlled deflection electrodes towards the screen to control the distance from said edge at which the beam impinges on the screen. An electrode arrangement is provided in the envelope for deflecting the beam towards the screen by an amount which increases with increasing distance from said edge of the envelope In this way the angle of attack of the beam on the screen at all positions along the screen is greater than it would be in the absence of the electrode arrangement. A grid may be arranged in the envelope parallel to an immediately behind the screen, the grid being connected to a D.C. source such that the angle of attach of the electron beam relative to the screen is further increased as the beam passes through the grid.

3,683,225

ORANGE-REFLECTIVE GRATICULE SCALE FOR CATHODE RAY TUBE

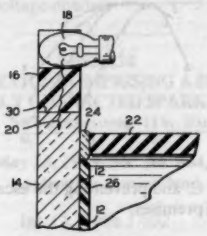
Marlow D. Butler, Portland, Oreg., assignor to Tektronix, Inc., Beaverton, Oreg.

Filed March 20, 1970, Ser. No. 21,401

Int. Cl. H01j *29/34*

U.S. Cl. 313—92 SC **5 Claims**

A graticule scale for a cathode ray tube is described which is made of a light reflecting material of chromatic color in the wavelength range of 5850 to 6500 angstroms, such as an orange of 6010 angstroms. The graticule scale may be provided on the inner surface of the flat glass faceplate of such tube and illuminated by light from an external source transmitted through the outer edge of such faceplate. The graticule scale of the present invention has the advantage that it is easily visible both in conditions of high ambient lighting due to its



chromatic color and when used as a lighted graticule for photography purposes or for viewing in a dark room.

3,683,226

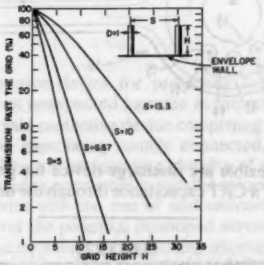
ELECTRIC LAMP APPARATUS HAVING DIFFUSION BARRIER

Harald L. Witting, Saratoga, N.Y., assignor to General Electric Company

Filed Sept. 30, 1970, Ser. No. 76,813

Int. Cl. H01j *1/54*

U.S. Cl. 313—109 **3 Claims**



Improved electric lamp apparatus exhibiting reduced bulb wall darkening includes a diffusion barrier adjacent the interior of the lamp envelope wall in the vicinity of the lamp electrode or electrodes. Diffusion barrier may be a wire-like mesh or grid spaced from the inner surface of the envelope and adjacent thereto, or a plurality of discrete particulate members in contact with and resting upon the inner surface of the lamp, projecting inwardly into the volume of the lamp envelope. Diffused specie emanating from the electrode selectively deposits upon the diffusion barrier leaving the adjacent envelope wall clear.

3,683,227

LOW-PRESSURE MERCURY-VAPOR GAS-DISCHARGE FLUORESCENT LAMP WITH AMALGAM

Jury Iosifovich Shindelman, ulitsa Kalinina, 3, kv. 57, and Galina Iosifovna Akulova, ulitsa Tsiolkovskogo, 37, kv. 63, both of Poltava, U.S.S.R.

Filed April 8, 1971, Ser. No. 132,392

Claims priority, application U.S.S.R., May 25, 1970, 1429911

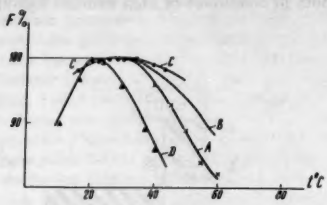
Int. Cl. H01j *61/24*

U.S. Cl. 313—109 **1 Claim**

A low-pressure mercury-vapor gas-discharge fluorescent lamp contains an amalgam of the formulation:

mercury	15–20 at. per cent
lead	45–75 at. per cent
bismuth	40–05 at. per cent

ensuring an optimum luminous flux in the temperature range



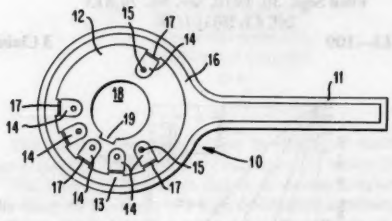
from 10° to 35° C. and preventing the escape of mercury into the surrounding premises.

3,683,228

PRINTED CIRCUIT SPARK GAP PROTECTOR FOR CATHODE RAY TUBE

Bergert G. Kleen, Kingston, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed April 30, 1970, Ser. No. 33,410
Int. Cl. H01j *5/54, 5/56;* **H01r** *13/46*
U.S. Cl. 313—318 **2 Claims**



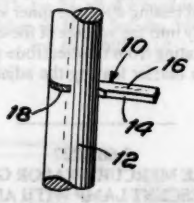
A thin, flexible arc discharge device for prevention of arc discharge of a CRT capacitance through the driver circuits.

3,683,229

RIBBON GRID FOR ELECTRON TUBES

Joseph J. Tritchler, Bethlehem, Pa., assignor to International Telephone and Telegraph Corporation, Nutley, N.J.

Filed Oct. 26, 1970, Ser. No. 84,033
Int. Cl. H01j *19/38*
U.S. Cl. 313—350 **5 Claims**



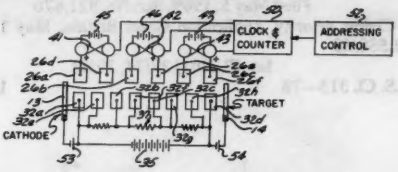
A grid for an electron tube comprises an axially extending helically wound continuous flat metallic strip or ribbon. The smallest dimension of the grid is along the length of the tube and is positioned in the lateral path of electrons between an inner central cathode and an outer concentric anode to minimize electron interception and excessive heating of the grid. The thin edges of the ribbon are secured in peripheral slots along a plurality of longitudinal support rods disposed around a circular area. The larger flat surfaces of the ribbon, extending in a transverse direction from the support rods, provide improved structural rigidity and heat dissipation.

3,683,230

ELECTRON BEAM LINE SCANNER WITH ZIG ZAG CONTROL ELECTRODES

Ronald H. Bingham, Torrance, and Edmond J. Canavan, Inglewood, both of Calif., assignors to Northrop Corporation, Beverly Hills, Calif.

Continuation-in-part of Ser. No. 755,276, Aug. 26, 1968, abandoned. This application May 22, 1970, Ser. No. 39,898
Int. Cl. H01j *29/74, 31/06, 29/41*
U.S. Cl. 315—12 **14 Claims**



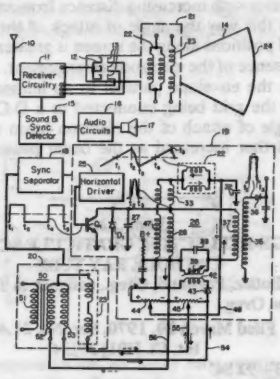
A pair of control plate members are utilized to control an electron beam between a cathode and a target in response to binary control signals. Each control plate member comprises a plate of a non-conductive substrate having a resistive coating thereon which is preferably electron secondary emissive. A plurality of electrode elements are arranged in parallel rows on the control plate members between the cathode and target. The electrode elements are formed by conductive strips arranged over the resistive coatings in a binary coded zig-zag pattern. The plate members are positioned with corresponding zig-zag electrode elements opposite each other and in 180° phasal relationship. The zig-zag electrode elements are excited with binary control signals which provide a transverse potential which permits the electron beam to pass from the cathode to only a single selected portion of the target at a time.

3,683,231

CENTERING CIRCUIT FOR TELEVISION RECEIVERS

Nikola Jagatic, Arlington Heights, Ill., assignor to Zenith Radio Corporation, Chicago, Ill.

Filed July 30, 1970, Ser. No. 59,497
Int. Cl. H01j *29/70*
U.S. Cl. 315—26 **9 Claims**

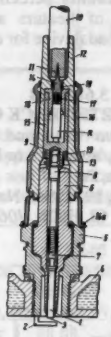


A raster centering circuit for a television receiver, in which the signal developed across a tuning circuit associated with a tunable sweep output transformer is rectified to provide the DC centering current.

3,683,232
SPARKPLUG CAP

Heinz Baur, Hardegsen, Germany, assignor to Firma Baur Elektronik GmbH, Hardegsen, Germany

Filed Feb. 3, 1970, Ser. No. 8,174
Int. Cl. H01t *13/04*
U.S. Cl. 315—58 11 Claims

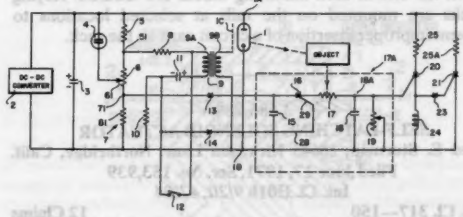


A sparkplug cap with a plastic insulating body containing the ignition cable terminal and the sparkplug terminal and a grounded screening jacket surrounding the same. The ignition cable terminal and/or sparkplug terminal are in the form of a condenser electrode which is enclosed in the plastic insulating body. Utilizing the plastic insulating body as dielectric, they form with the screening jacket a capacitor of high capacitance connected in parallel to the spark gap. The screening jacket forms a metallic sleeve, coil spring or metallic fabric. The inner condenser electrode is formed as a hollow cartridge and contains screened therewithin a radio interference-suppression resistor. The capacitor is connected behind the noise-suppression resistor, in the direction of the ignition current.

3,683,233
INPUT VOLTAGE CONTROL FOR THE LIGHT INTEGRATING CIRCUIT OF A PULSED FLASH DEVICE

Werner Heintze, Berlin, Germany, assignor to Loewe Opta GmbH, Berlin, Germany

Filed July 28, 1970, Ser. No. 58,839
Claims priority, application Germany, May 28, 1970, P 20 26 990.3
Int. Cl. H05b *41/40*
U.S. Cl. 315—156 8 Claims

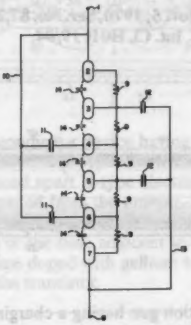


A thyristor-quenched pulse flash device employing a light integrating circuit to automatically control the operating duration of the device is provided with means for deriving the exciting voltage for the integrating circuit from the input circuit of the flash tube. A voltage divider is connected across the flash capacitor that feeds the main terminals of the flash tube, and the voltage developed across a resistance means within the voltage divider is coupled to the input of the integrating circuit through an additional thyristor switch that is enabled upon ignition of the flash tube. The resistance means may be a fixed discrete resistor, a variable resistor, or a selected one of a plurality of differently valued discrete resistors that is switched into the voltage divider.

3,683,234
PROTECTIVE DEVICE COMPRISING A PLURALITY OF SERIALLY CONNECTED SPARK GAPS

Arnold Rodewald, Steingrubenweg 116, Riehen near Basel, Switzerland

Filed May 13, 1969, Ser. No. 824,125
Claims priority, application Swtizerland, May 17, 1968, 7368/68.
Int. Cl. H05b *37/02*
U.S. Cl. 315—238 1 Claim

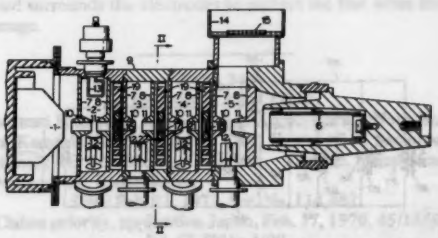


1. In a protective device for protecting a facility from damage due to an unexpected increase in the normal voltage on said facility, said protective device comprising a plurality of spark gaps, said gaps being serially connected, in a chain, across said facility; a corresponding plurality of resistors, one of said resistors being connected in parallel across each of said gaps, and in series with the rest of said resistors across said facility, to control the potential developed across each gap; a plurality of capacitors directly connecting alternate electrodes of each gap to opposite ends of said device whereby any unexpected voltage increase which occurs is immediately and directly coupled by said capacitors to each of said gaps.

3,683,235
ELECTRON DISCHARGE DEVICES

Graham Phillips, London, and Dudley Perring, Cookham, both of England, assignors to Electric & Musical Industries Limited, Hayes, Middlesex, England

Filed July 17, 1970, Ser. No. 55,879
Claims priority, application Great Britain, July 18, 1969, 36,398/69
Int. Cl. H01j *23/08*
U.S. Cl. 315—5.34 11 Claims



An electron discharge device includes a cathode for producing electrons, a target for collecting said electrons and

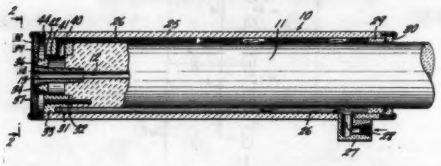
an electron focusing system for focusing the electrons from said cathode into a beam directed to said target. The focusing system includes a member having an aperture for the passage of the beam and a charge retaining surface surrounding said aperture on which in operation of the tube unfocused electrons from said cathode impinge, said surface having such a coefficient of secondary-electron emission for the energy of the cathode electrons under the rated operated conditions of the device that unfocused electrons tend to cause said surface to charge to a potential which will focus said electrons to pass through said aperture.

3,683,236

CHARGE DISTRIBUTION GUN

John P. Hanley, West Paterson, and Robert W. Seaman, Morris Plains, both of N.J., assignors to Gourdine Systems, Inc., Livingston, N.J.

Filed Nov. 5, 1970, Ser. No. 87,253
Int. Cl. H01t *19/04*
U.S. Cl. 317—3 **12 Claims**



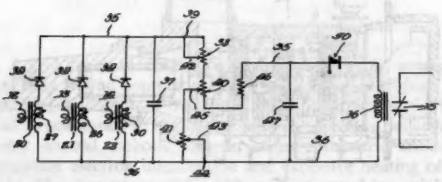
A charge distribution gun having a charging, corona region through which air flows to carry charges to a gun outlet opening to a zone where charge distribution is desired. Useful, for example, to suppress airborne dust, the gun includes an arrangement for preventing formation of a conductive or partly conductive path on exterior surfaces by the collection of charged particles thereon. A jacket encircling the charge flow path directs air to an annular opening and a porous end plate, both encircling the gun outlet. Air escaping through the annular opening reduces the settling of charged particles from the gun outlet back onto nearby gun surfaces. The porous plate defines a nonconductive outer surface encircling the gun outlet. Air forced through the pores of the plate maintain the surface clean of charged particles. No conductive path across the plate is formed; corona or contact discharge of charges at the gun output is prevented.

3,683,237

ADJUSTABLE SOLID STATE OVERLOAD RELAY

Dennis C. Walstad, Winfield, and Walter R. Knopf, Geneva, both of Ill., assignors to Furnas Electric Company, Batavia, Ill.

Filed Dec. 9, 1970, Ser. No. 96,439
Int. Cl. H01h *47/18*; **H02h** *7/085*
U.S. Cl. 317—13 R **4 Claims**



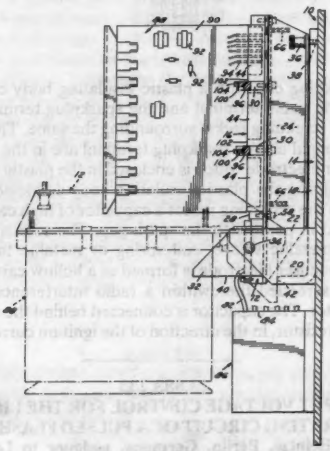
Overload and other excessive current conditions as regards an electric motor for example are sensed by current sensing loops which form the primary winding of respective transformers. The voltages developed across the secondary windings are rectified and supplied to a de-energizing circuit. In accordance with the invention a plurality of adjustable potentiometers are incorporated in the said circuit in a unique manner for calibrating the circuit and for limited adjustment whereby it is possible for different magnitudes of current flowing in the conductors to the motor to cause an overload tripping of the device and an interruption in the supply of said current to thus stop operation of the motor. The trip point can be adjusted as much as twenty percent up or down to thus eliminate the problems of heaters and the necessity of stocking a different overload device for every current rating.

3,683,238

PIVOTALLY SUPPORTED RACK CONSTRUCTION

Richard G. Olds, Garden City, and Eugene P. Bonzack, Livonia, both of Mich., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Feb. 11, 1971, Ser. No. 114,509
Int. Cl. H02b *1/06*
U.S. Cl. 317—118 **7 Claims**



An electrical control cabinet in which a rack for electronic circuit boards is pivotally supported for swinging movement from an upright operative position to a horizontally extending position to facilitate servicing the terminal connections at the rear face of the rack. The rack consists of a frame made up of a plurality of vertically and horizontally extending rails on which the circuit card mounting blocks are secured. Keying blocks are mounted on the rails at selected locations to prevent improper insertion of a circuit card on the rack.

3,683,239

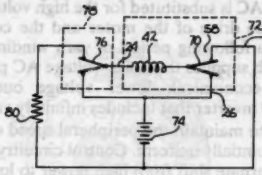
SELF-LATCHING SOLENOID ACTUATOR

Oded E. Sturman, 18643 Kirkcolm Lane, Northridge, Calif.

Filed June 17, 1971, Ser. No. 153,939
Int. Cl. H01h *9/20, 47/04*
U.S. Cl. 317—150 **12 Claims**

A self-latching solenoid actuator having a low power consumption and an internal switching arrangement whereby latching and unlatching may be accomplished by such means as a simple single-pole, double-throw remote switch. The solenoid has a permanent magnet in the magnetic circuit thereof so that an actuating current in a first direction will actuate the solenoid and charge the permanent magnet, and a smaller current in the opposite direction will de-magnetize the permanent magnet and allow a return spring to force the plunger to the fully extended position. A single-pole, double-throw switch

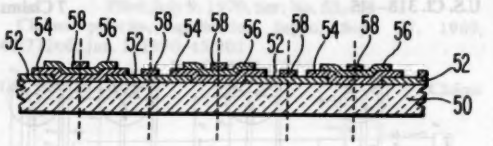
electrically coupled to the solenoid coil is disposed adjacent the magnetic circuit and mechanically coupled to the solenoid plunger. The switch is coupled in the circuit so as to be operative to turn off the actuating current and the unlatching current as the plunger approaches the latched and unlatched positions respectively, and to re-connect the solenoid coil in preparation for the next operating signal.



3,683,240
ELECTROLUMINESCENT SEMICONDUCTOR DEVICE OF GAN

Jacques Issac Pankove, Princeton, N.J., assignor to RCA Corporation

Filed July 22, 1971, Ser. No. 165,097
Int. Cl. H01l *15/00*
U.S. Cl. 317—234 R **8 Claims**

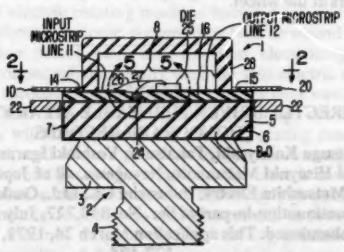


An electroluminescent semiconductor device including a body of insulating, crystalline gallium nitride and a pair of contacts electrically connected to spaced points of the body.

3,683,241
RADIO FREQUENCY TRANSISTOR PACKAGE

David M. Duncan, San Francisco, Calif., assignor to Communication Transistor Corp., San Carlos, Calif.

Filed March 8, 1971, Ser. No. 121,908
Int. Cl. H01l *1/02*
U.S. Cl. 317—234 **10 Claims**

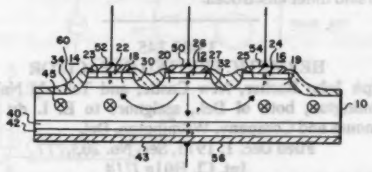


A transistor die is mounted over a pair of mutually opposed ceramic filled microstrip lines having a common ground plane, one of these strip lines being an input strip line and the other being an output strip line. An extention of the common ground plane member extends up through the dielectric fill material of the strip lines into the gap between the mutually opposed ends of the adjacent strip lines to form a common connector terminal. Two sets of leads interconnect the common connector terminal and the input strip line with the base and the emitter electrodes on the transistor die, whereas the collector electrode of the transistor die is electrically and thermally connected to the output strip line.

3,683,242
SEMICONDUCTOR MAGNETIC DEVICE

Jearld L. Hutson, P.O. Box 34235, Dallas, Tex.

Filed June 9, 1971, Ser. No. 151,314
Int. Cl. H01l *11/06*
U.S. Cl. 317—235 R **5 Claims**



A silicon semiconductor device having an N-type electrical conductivity emitter, a P-type electrical conductivity base, and a pair of spaced apart N-type electrical conductivity collectors equally spaced from the emitter, and which produces an electrical signal responsive to a magnetic field applied thereto. Regions of the base adjacent to the emitter and collector junctions are doped with gallium to control the collector efficiency of the transistor.

3,683,243
ELECTRICAL HYGROMETERS

Peter Rockliff, Bradford, England, assignor to Moisture Control and Measurement Limited, Yorkshire, England

Filed Oct. 21, 1970, Ser. No. 82,236
Int. Cl. H01g *7/00*
U.S. Cl. 317—246 **5 Claims**

A sensor for an electrical hygrometer of the capacitance type comprises two metal wire electrodes one at least of which has a hygroscopic layer and the two wires are brought into intimate contact with one another to act as electrodes by twisting, wrapping or winding them together but electrically insulated from one another. The two wires may be of similar gauge and twisted to double helix form, or laid side by side and bound together, or a fine gauge one may be wound helically round a straight coarser gauge one leaving spaces between adjacent coils. The hygroscopic layer or layers may be oxidized by anodizing. A fine gauge enameled copper wire may be wound round an oxidized aluminum wire of coarser gauge. A guard surrounds the electrodes to protect the fine wires from damage.

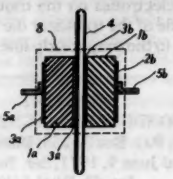
3,683,244
CERAMIC CAPACITOR

Toshinori Kitamura, Kyoto; Yoshio Ajichi; Itaru Miyata, both of Kameoka, and Masayoshi Ono, Kyoto, all of Japan, assignors to Nichicon Capacitor, Limited, Karasuma, Nakagyo-ku, Kyoto, Japan

Filed Feb. 11, 1971, Ser. No. 114,482
Claims priority, application Japan, Feb. 17, 1970, 45/15500
Int. Cl. H01g *3/00*
U.S. Cl. 317—261 **3 Claims**

A ceramic capacitor having a body of dielectric material formed of two halves with at least one inner and one outer

electrode on opposite sides thereof, the inner electrodes being conductively bonded one to the other with an electrode ter-



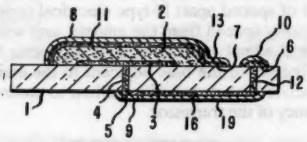
minal extending through said body and in conductive relationship to said inner electrodes.

3,683,245

HERMETIC PRINTED CAPACITOR

Rudolph John Bacher, New Castle, and Takashi Nakayama, Wilmington, both of Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Dec. 1, 1971, Ser. No. 203,777
Int. Cl. H01g *1/14*
U.S. Cl. 317—261 7 Claims



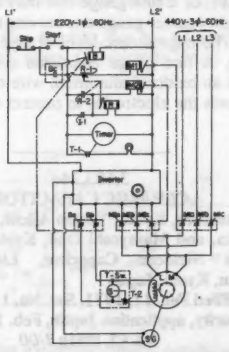
A printed capacitor is made hermetic by providing a hole through the substrate to permit electrical connection of the bottom electrode to the opposite side of the substrate, thereby allowing the top electrode to seal completely to the substrate and to be hermetically sealed by a solder coating. Preferred embodiments provide a second hole through the substrate permitting both of the electrical connections to be on the same side of the substrate.

3,683,246

SINGLE MOTOR DRIVE OF FORMING WINDER COLLET

Saul Warshaw, New York; Arnold J. Eisenberg, East Setaucket, and Winton Loveland, Fort Salonga, all of N.Y., assignors to The Loveshaw Corporation, Deer Park, L. I., N.Y.

Filed June 9, 1971, Ser. No. 151,250
Int. Cl. H02p *5/34*
U.S. Cl. 318—6 8 Claims



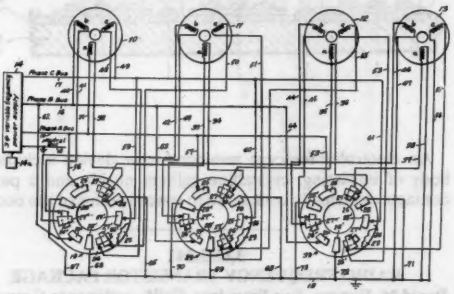
Single motor drive of a rotatable, relatively massive collet in a forming winder which successively cross winds packages of a strand or yarn on the rotating collet. A high-powered motor which is energized by relatively high voltage AC rapidly rotates the collet up to a maximum predetermined speed during an initial period of accelerating action. Then relatively lower voltage AC is substituted for the high voltage AC power to continue the drive of the motor and the collet from the latter during a following period of yarn winding action. The circuitry which supplies the lower voltage AC power includes a relatively economical, lower voltage output, variable frequency AC inverter that includes infinitely variable change speed means to maintain the peripheral speed of the building package substantially uniform. Control circuitry is provided to effect this alternate shift from high power to low power drive of the single motor between the periods of accelerating action and the winding action of the operational cycle. Preferably it includes relay means to hold this control circuitry closed during the operational cycle and simultaneously to hold open a braking circuit that imposes braking action upon the driving motor as power to the latter is cut off at the termination of this cycle.

3,683,247

ELECTRICAL GEAR SHIFTING IN WHEEL DRIVES

Eberhart Reimers, 7700 Random Run Lane #201, Falls Church, Va.

Filed May 27, 1971, Ser. No. 147,562
Int. Cl. H02p *3/74*
U.S. Cl. 318—45 7 Claims



Disclosed is a new and novel switching of four three phase squirrel cage motors adapted to drive the wheel of a vehicle whereby extension of the constant power-speed range of said motors is attained through means of integral switching of the windings of the motors without resorting to mechanical gear shifters at the wheel.

3,683,248

DIRECTLY DRIVEN TURNTABLE APPARATUS FOR PHONOGRAPH RECORDS

Kazutsugu Kobayashi, Takatsuki; Yoshiaki Igarashi, Kadoma, and Hisayuki Matsumoto, Neyagawa, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

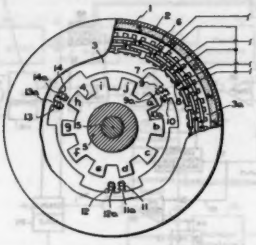
Continuation-in-part of Ser. No. 840,727, July 10, 1969, abandoned. This application March 24, 1971, Ser. No. 127,494

Claims priority, application Japan, July 17, 1968, 43/51284; Oct. 9, 1968, 43/74081.

Int. Cl. H02k *29/00*
U.S. Cl. 318—138 5 Claims

A turntable apparatus driven directly by an electronically commutated motor having a speed of 33 ⅓ rpm or 45 rpm which decreases the rumble and the wow and flutter to a

minimum and assures these characteristics for a long time, the changing and adjusting of the turntable speed are carried out

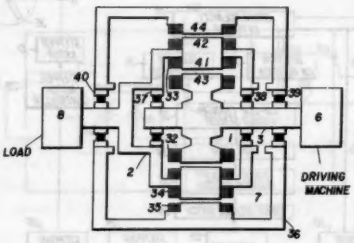


electronically without any mechanical mechanism, and the turntable is self-starting and can be built in a short time.

3,683,249
ELECTRIC MACHINE ARRANGEMENT COMBINING ELECTROMAGNETIC COUPLING WITH ELECTRIC ROTATING MACHINE

Fukuo Shibata, 13 Tokiwa-cho, Nishinomiya, Hyogo-Prefecture, Japan

Filed July 9, 1970, Ser. No. 53,413
Claims priority, application Japan, Sept. 27, 1969, 44/77266; Jan. 1, 1970, 45/202
Int. Cl. H02p 7/36
U.S. Cl. 318—205 7 Claims

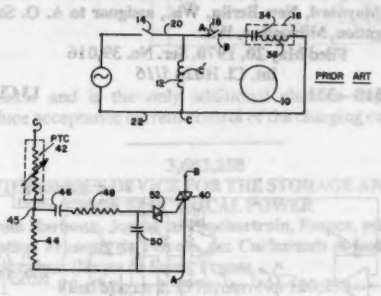


When an electromagnetic coupling is connected mechanically with an electric rotating machine having a stator, for instance a synchronous motor, a cage rotor type or wound rotor type induction motor etc., and the said electromagnetic coupling is connected electrically with the said electric rotating machine through a phase sequence change over switching device, further the electromagnetic coupling combined mechanically with the rotor of the electric rotating machine drives a load, and the other rotor of the electromagnetic coupling is driven by a driving machine, the electric machine arrangement has such advantages as shown by (1) obtaining power transmitting devices with operation similar to reduction gears which transmit outputs of other driving machines to loads; (2) possibility of driving one rotor of electromagnetic coupling in direction opposite to the rotation of the other rotor; and so forth. If the mechanical combination between the rotor of the electromagnetic coupling and the rotor of the electric rotating machine is made by using a rotor in common for the electromagnetic coupling and for the electric rotating machine, the electric machine arrangement becomes compact.

3,683,250
TIMED INDUCTION MOTOR START SWITCH UTILIZING POSITIVE TEMPERATURE COEFFICIENT THERMISTOR AND SEMI-CONDUCTOR SWITCHING DEVICE

David C. Fricker, Hurst, Tex., assignor to ECC Corporation, Euless, Tex.

Filed July 29, 1970, Ser. No. 59,303
Int. Cl. H02p 1/44
U.S. Cl. 318—221 E 12 Claims

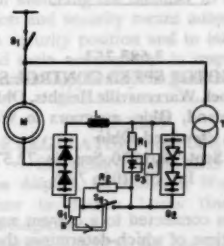


An electronic switch circuit for controlling the start operation of a single phase induction motor of the timed start type in which the start winding is disconnected a controllable time interval after the start cycle is initiated. A symmetrical conductor switching device is used for providing the switching function with the switching device being switched to a low impedance state, effectively connecting the start winding in circuit, when a charging device is charged to a predetermined level. A positive temperature coefficient thermistor is used for varying the voltage supplied to charge a charging capacitor and to vary the time constant of the charging capacitor. A phase shift capacitor connected in series with the charging capacitor causes the charging current of the charging capacitor to lead that of the applied line voltage and permit the switching device to be rendered conductive in a desired time relationship with the voltage supplied to the motor.

3,683,251
SUB-SYNCHRONOUS STATIC CONVERTER CASCADE

Johann Pisecker, Nussbaumen, Switzerland, assignor to Aktiengesellschaft Brown, Boveri & Cie, Baden, Switzerland

Filed Dec. 21, 1970, Ser. No. 99,837
Claims priority, application Switzerland, Jan. 14, 1970, 465/70
Int. Cl. H02p 7/62
U.S. Cl. 318—237 1 Claim



A sub-synchronous static converter cascade with a slip-ring motor and a static frequency converter connected to the rotor of the motor in which the converter comprises a diode rectifier and a static converter operating as a mains-controlled static

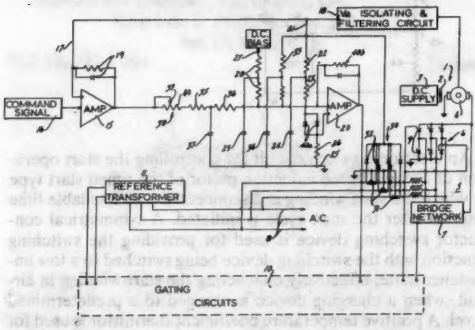
converter. A resistor and a voltage-controlled thyristor switch forming a series circuit is connected in parallel with the static converter, and a high-speed circuit breaker bridged by a second resistor is connected between the diode rectifier and the junction of the thyristor switch with the static converter.

3,683,252

DYNAMOELECTRIC MACHINE CONTROL CIRCUIT HAVING CURRENT LIMITING MEANS

John T. Maynard, New Berlin, Wis., assignor to A. O. Smith Corporation, Milwaukee, Wis.

Filed May 20, 1970, Ser. No. 39,016
Int. Cl. H02p 5/16
U.S. Cl. 318—331 **13 Claims**



A D.C. shunt motor armature is connected to a three-phase A.C. input through a pair of parallel-connected, full-wave, silicon controlled bridge rectifiers to selectively vary the voltage and current supply to the armature. The controlled rectifiers are phase controlled in accordance with a command voltage, an armature voltage and a modifying voltage proportional to the counterelectromotive force for IR compensation and armature current for current limit. The modifying voltage includes an armature current related signal establishing a percentage armature current compensation which is of the order of 50 percent and greatly in excess of the normal IR compensation and directly establishes a continuous current limit to positively prevent excessive armature current by phasing back of the bridge rectifiers.

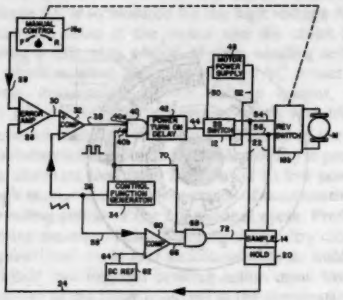
3,683,253

C.E.M.F. MOTOR SPEED CONTROL SYSTEM

Edward W. Rummel, Warrensville Heights, Ohio, and Richard H. Funk, Cleveland, Ohio, assignors to Western Reserve Electronics Inc., Cleveland, Ohio

Filed Sept. 16, 1970, Ser. No. 72,574
Int. Cl. H02p 7/06
U.S. Cl. 318—331 **2 Claims**

A D.C. motor is connected to a current supply through a switch, the "on" time of which determines the motor speed. Exact speed control is effected by sampling the C.E.M.F. during the "off" time of the power switch, after the inductive jump has decayed, before the motor speed has decayed and before the next power "on" application occurs. The C.E.M.F. is compared with a reference voltage and the motor turned "on" or left "off" depending on whether the C.E.M.F. is higher or lower than the reference voltage. The reference voltage may be manually or automatically adjusted to determine ultimate motor speed.

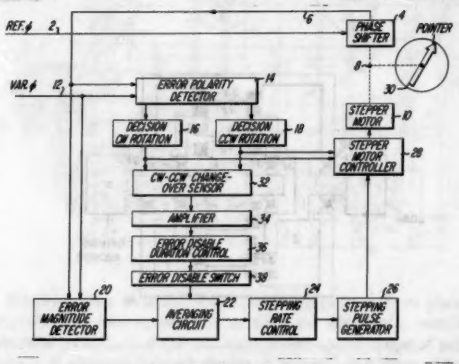


3,683,254

SERVO SYSTEM WITH NOISE CANCELLATION

Michel Stephane Masse, Hollywood, and James Paul McDowell, Los Angeles, both of Calif., assignors to RCA Corporation

Filed Feb. 22, 1971, Ser. No. 117,552
Int. Cl. G05b 1/01
U.S. Cl. 318—608 **9 Claims**



An arrangement for reducing the effect on system performance due to noise in a servo system, wherein an output device is driven in accordance with an error signal, with the output device generating feedback signal to reduce the error. A quantity of direction sense reversals of the error signal due to noise is monitored and utilized to provide controlled velocity limiting of the drive means for a given duration.

3,683,255

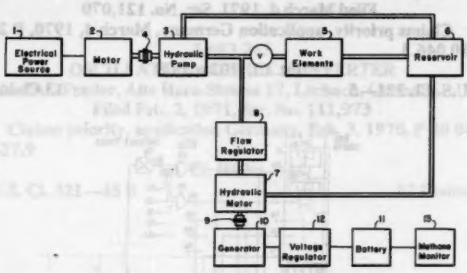
POWER SOURCE FOR METHANE MONITOR SYSTEM

William E. Schroeder, Pittsburgh, Pa., assignor to Schroeder Brothers Corporation, McKee Rocks, Pa.

Filed Dec. 21, 1970, Ser. No. 100,167
Int. Cl. E21f 9/00
U.S. Cl. 320—2 **4 Claims**

A constant voltage DC power source for operating a methane monitoring system for mining equipment and the like. A hydraulic motor teed from the main hydraulic system of the mining equipment is connected in series with a flow control element. In this way, the hydraulic motor turns fast

enough to cause a generator to charge a storage battery during only periods of high pressure. The field of the generator is



controlled by a voltage regulator which limits the voltage in the storage battery to a preset level. The storage battery supplies constant DC current to the monitoring system.

3,683,256

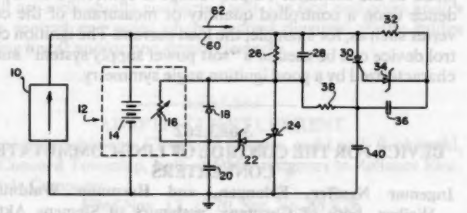
HIGH-CURRENT APPARATUS FOR CHARGING BATTERIES

Joseph A. Mas, 3 Maple Way, Woodbury, N.Y.

Filed Oct. 23, 1970, Ser. No. 83,468

Int. Cl. H02j *7/10*

U.S. Cl. 320—14 **10 Claims**



A battery charger for charging a battery by a high current under acceptance current control. The battery is periodically discharged by high-magnitude, small-width pulses to increase the acceptance current level. The discharge pulser includes two SCR's connected across the battery. The discharge pulse is initiated by turning on the first SCR. A first capacitor then functions to turn on the second SCR and a second capacitor, when the second SCR turns on, causes the first SCR to turn off. The first capacitor then charges to control the automatic turn-off of the second SCR.

3,683,257

APPARATUS FOR CHARGING BATTERIES

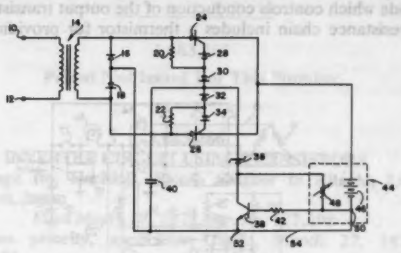
Joseph A. Mas, 3 Maple Way, Woodbury, N.Y.

Filed Oct. 23, 1970, Ser. No. 83,469

Int. Cl. H02j *7/10*

U.S. Cl. 320—31 **6 Claims**

Apparatus for charging a battery under acceptance current control. Two SCR's are included in a bridge circuit for supplying charging current to the battery during alternate half cycles. A transistor, connected in a feedback configuration to the gates of the SCR's, diverts gate current from the SCR's to delay the firing angle in the event the charging current exceeds the maximum safe value. A single element, a gassing rate sensor contained in the battery case, is coupled to the



transistor and is the only additional element required to produce acceptance current control of the charging current.

3,683,258

AUTONOMOUS DEVICE FOR THE STORAGE AND USE OF ELECTRICAL POWER

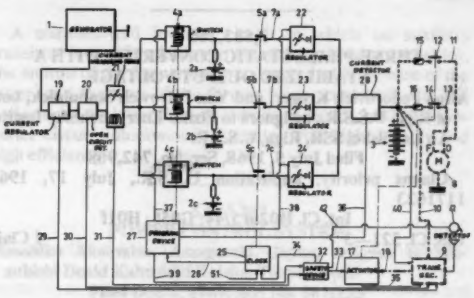
Jacques Harbonn, Jouars en Ponchartrain, France, assignor to Institut Francais du Petrole, des Carburants et Lubrifiants, Malmaison (Haute de Seine, France

Filed March 2, 1971, Ser. No. 120,291

Claims priority, application France, April 3, 1970, 7007819

Int. Cl. H02j *7/00;* H02p *9/04*

U.S. Cl. 320—61 **8 Claims**



Autonomous device for the storage and the use of electric power for controlling at least one member of a sub - station from a remote main station , comprising , at said sub - station , a low power autonomous generator , a main electric power accumulator , intermediary power accumulator means charged with the current supplied by the generator and discharged in said main accumulator , means for actuating said member , energized by said accumulator and controlled by control means remotely actuated from the main station , means for maintaining a minimum charge level of the accumulator which is sufficient for switching the member to be controlled to a security position and security means adapted to switch said member to its security position and to interrupt the charge current to said main accumulator in response to abnormal values of the current supplied by the generator.

3,683,259

VOLTAGE REGULATORS FOR USE IN BATTERY CHARGING SYSTEMS

Maurice James Allport, Stourbridge, Worcestershire, England, assignor to Joseph Lucas (Industries) Limited, Birmingham, England

Filed Feb. 18, 1971, Ser. No. 116,508

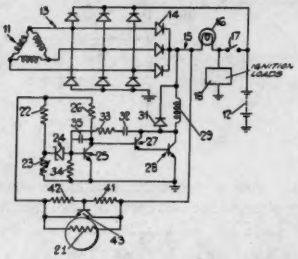
Claims priority, application Great Britain, March 3, 1970, 10,053/70

Int. Cl. H02j *7/00*

U.S. Cl. 320—68 **4 Claims**

A voltage regulator has an output transistor which controls

current flow in the field winding of a generator charging a battery, and a resistance chain for sensing the output voltage of the generator. Connected to the resistance chain is a Zener diode which controls conduction of the output transistor, and a resistance chain includes a thermistor for providing temperature compensation. The thermistor is bridged by the collector-emitter path of a transistor and biasing means is provided for controlling the base voltage of the transistor so that the regulated voltage varies with temperature in a predetermined manner.



3,683,260

THREE-PHASE STATIC CONVERTER WITH A STABILIZED OUTPUT VOLTAGE

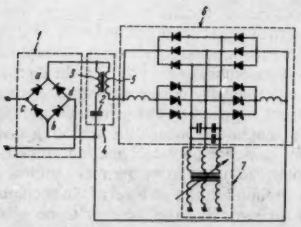
Alfon Fedorovich Kroger, and Yan Petrovich Stabulniek, both of Riga, U.S.S.R., assignors to Fiziko-Energetichesky Institut An Latviiskoi SSR, Riga, U.S.S.R.

Filed July 5, 1968, Ser. No. 742,908

Claims priority, application U.S.S.R., July 17, 1967, 1171623

Int. Cl. H02m *5/44*; G05f ; H01f

U.S. Cl. 321—3 **1 Claim**



A three-phase static converter with a stabilized output voltage. The static converter includes a rectifier having an input and an output, transformer filter having a primary connected in parallel with the output of the rectifier and a capacitor connected in series with the primary, a self-contained three-phase inverter with a regulated output voltage, a variable-reluctance regulating transformer connected to the self-contained inverter at the output thereof to regulate its output voltage, the self-contained inverter electrically coupled to the rectifier through the secondary of the transformer filter, the secondary having one end connected to the output of the rectifier and the other end connected to the input of the self-contained inverter so as to be connected in series therebetween.

3,683,261

IGNITION CONTROL DEVICE FOR A CONVERTER

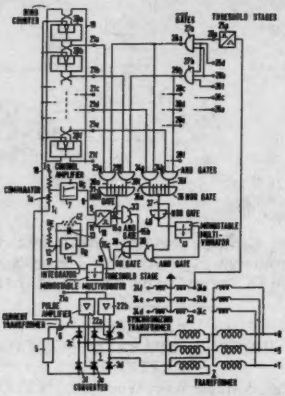
Joachim Holtz, Am Walde 29, Braunschweig, and Peter Schulze, Maria-Gebbert-str. 14, Uttenreuth, both of Germany

Filed March 4, 1971, Ser. No. 121,070

Claims priority, application Germany, March 4, 1970, P 20 10 046.3

Int. Cl. H02m *1/08*

U.S. Cl. 321—5 **13 Claims**



The invention relates to an ignition control device for a converter having a free swinging oscillating oscillator, whose output voltage permits the regulation of the converter valves at variable ignition angles and in a predetermined sequence. The phase of the oscillator output voltage is controlled in dependence upon a controlled quantity or measurand of the converter such as, for example, the load current. The ignition control device can be used in a "soft power supply system" and is characterized by a good ignition angle symmetry.

3,683,262

DEVICE FOR THE CONTROL OF LINE-COMMUTATED CONVERTERS

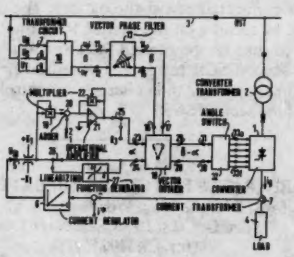
Ingemar Neuffer, Erlangen, and Hermann Waldmann, Weiher, both of Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Germany

Filed Aug. 12, 1971, Ser. No. 171,256

Claims priority, application Germany, Aug. 18, 1970, P 20 40 893.9

Int. Cl. H02m *1/08*

U.S. Cl. 321—5 **15 Claims**



In a device for the control of line-commutated converters, the fundamental of the line voltage vector is filtered out by a vector phase filter and is shifted back in phase by an angle corresponding to the desired firing delay angle by a vector rotator as a function of a DC control voltage. The output of the vector

rotator then exercises control via an angle switch which determines the trigger pulses of the converter valves at definite, recurring angular positions of the vector quantity fed to it. The control is independent of the wave shape and the frequency of the system.

3,683,263

OSCILLATING CIRCUIT CONVERTER

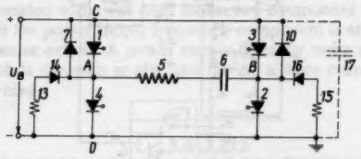
Manfred Fender, Alte Harz-Strasse 17, Lerbach, Germany

Filed Feb. 2, 1971, Ser. No. 111,973

Claims priority, application Germany, Feb. 3, 1970, P 20 04 627.9

Int. Cl. H02m 7/48

U.S. Cl. 321—45 R **12 Claims**



This specification describes an oscillating circuit converter of the type including a bridge circuit with four control switches possessing valve characteristics, the first diagonal of the bridge containing a series circuit of a capacitor and a coil and the second diagonal of the bridge being connected to a DC voltage source and further including two switches mounted opposite from each other in the bridge and having the same pass direction and at least two switches each having a diode connected in parallel.

In the circuit converter of the type described the end points of the first diagonal of the bridge and containing the series circuit are individually connected with the first end point and/or the second end point of the second diagonal of the bridge using linear and/or non-linear elements.

3,683,264

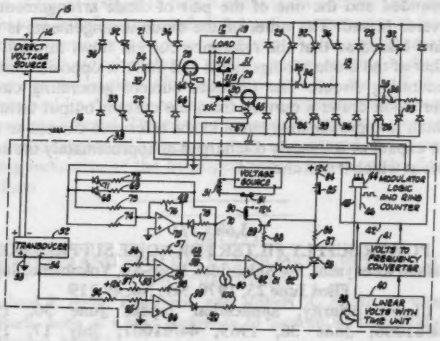
ADAPTIVE LIMIT CURRENT

Robert G. Schieman, Cleveland Heights, and Lee J. Penkowski, Concord Township, both of Ohio, assignors to Reliance Electric Company

Filed Nov. 12, 1970, Ser. No. 88,826

Int. Cl. H02m 1/18

U.S. Cl. 321—14 **8 Claims**



A limit circuit responsive to varying input line voltages to an inverter in order to establish a variable current limit value or maximum current at which the inverter circuit is allowed to operate. If the load current attempts to exceed a variable value established by the input line voltage, the current is limited, and in the preferred embodiment the current is electronically interrupted.

3,683,265

Patent Not Issued For This Number

3,683,266

INVERTER CIRCUIT USING TRANSISTORS

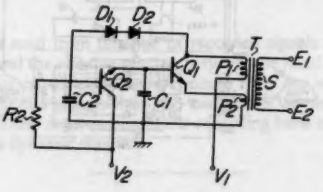
Hisatsugu Ito, Hachioji, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed March 23, 1971, Ser. No. 127,208

Claims priority, application Japan, March 27, 1970, 45/25254

Int. Cl. H02m 7/52; H03k 17/00, 3/30

U.S. Cl. 321—44 **5 Claims**



A transistorized inverter circuit in which an auxiliary transistor is used in addition to the main or inverter transistor, the emitter of the former being connected with the base of the latter, and the base of the former being connected with the collector of the latter through a diode or diodes, so that the inverter circuit autonomously operates with high stability and high efficiency.

3,683,267

POWER CONTROL SYSTEM

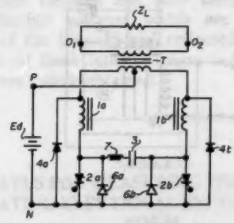
Masahiko Akamatsu, Amagasaki, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 1, 1969, Ser. No. 881,225

Claims priority, application Japan, Dec. 14, 1968, 43/91814; Dec. 26, 1968, 43/95751; Feb. 3, 1969, 44/8033; Dec. 2, 1968, 43/88144; Feb. 3, 1969, 44/8034; Feb. 19, 1969, 44/12394; July 2, 1969, 44/57571

Int. Cl. H02m 7/48

U.S. Cl. 321—45 R **13 Claims**



In power control including at least two thyristors disposed between a dc input and an ac output and at least one capacitor interconnecting the thyristors in pair, a nonlinear reactor is serially connected to each thyristor and one of the thyristors is fired to apply a voltage accumulated on the capacitor, to the other thyristor, as a reverse bias, to effect commutation. A diode can be connected to reverse parallel to each thyristor. Also a commutation transformer can be disposed in a path

along which the voltage across the capacitor is applied to either of the thyristors.

3,683,268

BRUSHLESS ROTARY ELECTRIC MACHINE

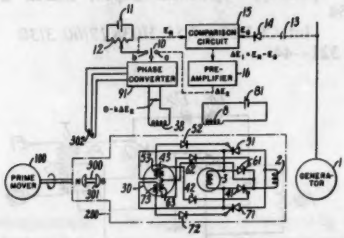
Yoshiyuki Obata, Kobe, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 14, 1970, Ser. No. 97,513

Claims priority, application Japan, Dec. 18, 1969, 44/101851

Int. Cl. H02p 9/30

U.S. Cl. 322—20 6 Claims



A rotating-field type rotary electric machine is provided on its elongated rotary shaft with a rotor of a rotating armature type a.c. exciter, thyristors and pulse generator, whereby a voltage induced in the rotor of the a.c. exciter is supplied to the rotary field of the rotary electric machine after rectified by the thyristors to become a d.c. exciting current. The d.c. exciting current is controlled by controlling the firing angle of the thyristors by an output pulse from the pulse generator mounted to the rotary shaft.

3,683,269

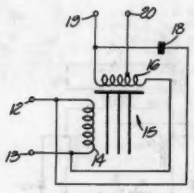
PARAMETRIC VOLTAGE REGULATOR WITH HIGH POWER TRANSFER CAPACITY

Sylvan D. Wanlass, Santa Ana, Calif., assignor to Wanless Electric Company, Santa Ana, Calif.

Filed Aug. 7, 1963, Ser. No. 750,914

Int. Cl. G05f 3/06

U.S. Cl. 323—44 R 4 Claims



A voltage regulator in which power is transferred to the resonant circuit of a parametric device by both the parametric mechanism and either flux coupling or direct coupling or both. The device includes a core on which are wound an input winding and at least one output winding which forms part of the resonant circuit. This winding is parametrically coupled to the input winding. Another output winding on the core is connected into the resonant circuit and flux coupled to the input winding, or alternately, the input can be directly coupled into the resonant circuit. In either case, the resonant frequency of the resonant circuit is the same as that of the input voltage.

3,683,270

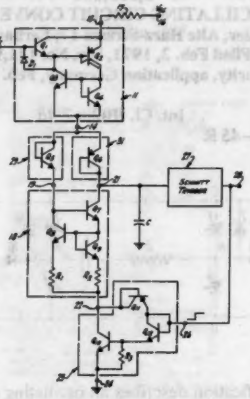
INTEGRATED CIRCUIT BILATERAL CURRENT SOURCE

John A. Mattis, Sunnyvale, Calif., assignor to Signetics Corporation, Sunnyvale, Calif.

Filed Feb. 22, 1971, Ser. No. 117,347

Int. Cl. G05f 1/58; H02j 3/10

U.S. Cl. 323—4 18 Claims



A bilateral current source is provided for generating equal and opposite sourcing and sinking currents which are useful, for example, in linearly charging and discharging a capacitor. A reference current source utilizes a lateral PNP transistor to provide high output impedance and NPN transistor are interconnected with the lateral PNP transistor to insure that a reference current output is independent of the lateral PNP transistor's β and temperature variations. A pair of diode arrangements connect the reference current source to an opposite current generating circuit and one of the pair of diodes also connect the reference current output to a current output terminal to which a capacitor which is to be charged and discharged is connected. The opposite current generating circuit is coupled by a switch arrangement to a source of reference potential which may be ground and the switching arrangement is driven by a control voltage. When the opposite current generating circuit is floating the constant reference current flows through the one of the diode arrangements and out the current output terminal to charge the capacitor at a linear rate. When the control voltage actuates the switching arrangement, the opposite current generating circuit is grounded and the one of the pair of diode arrangements is reverse biased. The other of the diode arrangements is forward biased so that the reference current flows through the other of the diode arrangements and into the opposite current generating circuit. The opposite current generating circuit thereupon draws a current from the current output terminal which is approximately equal to the reference current so that the capacitor is linearly discharged at approximately the same rate at which it was charged.

3,683,271

POWER SUPPLY FILTER FOR NOISE SUPPRESSION

Tatsuo Kobayashi, 3-4 Shiomidai, Isogo-ku, Yokohamo, Japan

Filed June 23, 1970, Ser. No. 49,119

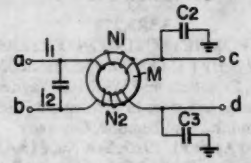
Claims priority, application Japan, June 30, 1969, 44/61006; June 30, 1969, 44/61007; July 17, 1969, 44/67412; July 17, 1969, 44/67413; July 17, 1969, 44/67414; Sept. 30, 1969, 44/92781; Sept. 30, 1969, 44/92782

Int. Cl. G05f 3/04; H03h 7/00

U.S. Cl. 323—76 7 Claims

The invention provides a power supply filter for noise suppression in which the windings of a plurality of lines for sup-

plying a power supply voltage and current of a predetermined frequency are so wound around same magnetic core that the sum of the magnetic fluxes produced by the windings may become zero, thereby providing an inductance element. This inductance is almost negligible to a power supply frequency component while it is high to a high frequency noise component, so that the power supply frequency component is not attenuated while the high frequency component superposed upon the power supply frequency component is attenuated to a greater extent. A power supply filter for noise suppression which is compact in size and having a large current may be provided.



3,683,272

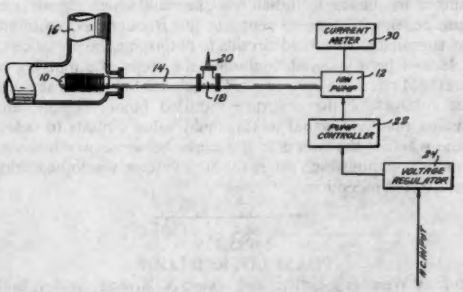
METHOD AND APPARATUS FOR DETERMINING HYDROGEN CONCENTRATION IN LIQUID SODIUM UTILIZING AN ION PUMP TO IONIZE THE HYDROGEN

Donald R. Vissers, Naperville; John T. Holmes, Downers Grove; Paul A. Nelson, Wheaton, and Louis G. Bartholme, Joliet, all of Ill., assignors to The United States of America as represented by the United States Atomic Energy Commission

Filed Nov. 24, 1970, Ser. No. 92,466

Int. Cl. G01n *27/00*, *7/00*; G21c *7/00*

U.S. Cl. 324—33 **11 Claims**



A device for and method of measuring hydrogen concentration in liquid sodium to detect water leaks into the sodium. A thin-wall, tubular, annealed nickel probe in contact with liquid sodium is connected to an ion pump. A vacuum is created within said nickel probe by the ion pump, causing hydrogen atoms in the liquid sodium to diffuse through the wall of the probe and be drawn into the ion pump wherein the hydrogen atoms are ionized. The current generated within the ion pump by the ionization of hydrogen atoms is measured, this current being indicative of the hydrogen concentration in the liquid sodium.

3,683,273

METHOD AND APPARATUS FOR MEASURING FLUID FILM BEARINGS

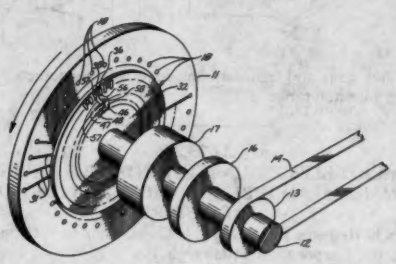
Michael I. Behr, Pasadena, and Robert A. Smith, Newbury Park, both of Calif., assignors to Burroughs Corporation, Detroit, Mich.

Filed Feb. 27, 1970, Ser. No. 15,051

Int. Cl. G01r *33/00*

U.S. Cl. 324—34 R **11 Claims**

A technique particularly useful for measuring the flying characteristics of a magnetic recording head on an air bearing adjacent a rotating disk is described. According to this technique one of a plurality of magnetic transducers mounted in the moving disk records a line of signals of known amplitude and wavelength on a magnetic recording surface placed on the recording head being evaluated. The signal amplitude is read from this line of recorded signals as the disk rotates, and the relative spacing between the head and disk at two points on the head is determined from the relative amplitudes of the signals from the two points. In this way, the pitch, roll and deformation of the recording head can be measured in a dynamic situation.



3,683,274

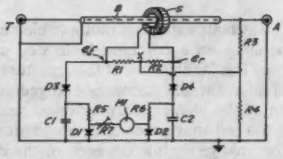
LUMPED COMPONENT STANDING WAVE RATIO INDICATORS FOR RADIO FREQUENCY TRANSMISSION LINES

Peter G. Martin, Oak Cottage, Witton Gilbert, England

Filed June 4, 1970, Ser. No. 43,452

Int. Cl. G01r *27/04*

U.S. Cl. 324—58 R **4 Claims**



An instrument which gives direct readings of the standing wave ratio on a radio frequency transmission line by deriving direct current voltages which are proportional to the forward and reflected voltages and then using these voltages to generate further voltages which are dependent on the logarithm of the forward and reflected voltages. By direct comparison of these latter voltages a direct reading of the standing wave ratio is obtained.

3,683,275

APPARATUS FOR MEASURING THE VALUE OF AN ALTERNATING ELECTRICAL SIGNAL OF ANY WAVE FORM

Eliot Patrick Fowler, Swanage, Dorset, England, assignor to United Kingdom Atomic Energy Authority, London, England

Filed Aug. 5, 1968, Ser. No. 750,116

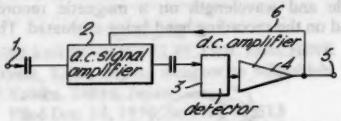
Claims priority, application Great Britain, Aug. 8, 1967, 36,472/67

Int. Cl. G01r *15/10*, *1/30*

U.S. Cl. 324—115 **6 Claims**

The measurement of an a.c. signal is accomplished by feeding the signal through an a.c. amplifier having variable gain to

a detector from which a d.c. signal characteristic is extracted indicative of its value. The d.c. signal is fed back to control the



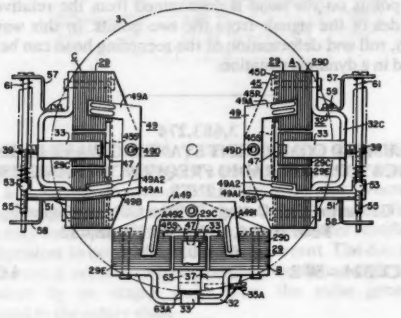
amplifier gain and maintain the level of the detector input within a limited range.

3,683,276

MULTI-ELEMENT INDUCTION DEVICE HAVING COMMON ARMATURE AND MAGNETIC LIGHT-LOAD ADJUSTERS

James E. Ramsey, Jr., Raleigh, N.C., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Sept. 23, 1970, Ser. No.
Int. Cl. G01r 11/02, 11/32
U.S. Cl. 324—137 17 Claims



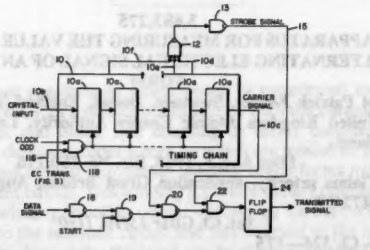
An induction watthour meter has multiple elements or electromagnets operating on a common laminated electro-conductive armature. The laminations of the armature are slotted and the slots of adjacent laminations are staggered. The connections to one of the elements are reversed relative to the connections to the remaining elements. Magnetic shielding is provided for the voltage section on each of the elements. A magnetic light-load adjuster is provided for each of the elements.

3,683,277

COMMUNICATION SYSTEM FOR BINARY CODED DATA

Lawrence Kuller, and Sidney N. Jerson, both of St. Paul, Minn., assignors to Astrocon Corporation, St. Paul, Minn.

Filed April 13, 1970, Ser. No. 27,649
Int. Cl. H04b 1/00
U.S. Cl. 325—30 15 Claims



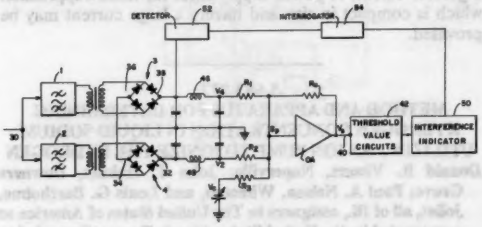
A square-wave carrier signal is combined with a bi-level binary-coded data signal, which has a data bit time equal to the period of one cycle of carrier signal, to produce a phase-modulated carrier in which the phase of the second half of each cycle of carrier signal is shifted 180° only if the bit contained in the corresponding bit period is at a preselected one of its two possible levels representing either a binary "one" or "zero" otherwise referred to as a mark or a space.

3,683,278

METHOD FOR DETECTING INTERFERENCE IN FREQUENCY SHIFT DATA TRANSMISSION SYSTEMS

Horst Ohnsorge, Erstetten, and Winfried Wagner, Ulm/Donau, both of Germany, assignors to Telefunken Patentverwertungsgesellschaft m.b.h., Ulm/Danube, Germany

Filed April 11, 1969, Ser. No. 815,458
Claims priority, application Germany, April 11, 1968, P 17 62 117.9
Int. Cl. G01d 1/16
U.S. Cl. 325—42 3 Claims



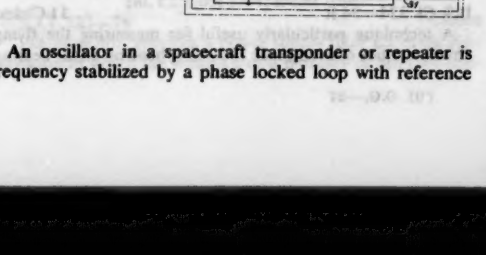
A method for detecting interference in data transmission systems of the type in which binary signals are sent by transmitting a signal of one frequency to indicate a zero and of another frequency to indicate a one, and which signals are, upon receipt, filtered to separate the frequencies, rectified, and supplied to threshold circuits to determine the presence of a desired binary signal, including the steps of supplying to threshold circuits a voltage which includes the sum of the output voltages of the separate rectified binary signals, and passing that sum signal to threshold value circuits to determine whether the sum is in the range between two threshold voltages, within which range the sum voltage would lie during undistorted reception.

3,683,279

PHASE LOCKED LOOP

Murray Weinberg, Union, and Irving A. Krause, Nutley, both of N.J., assignors to International Telephone and Telegraph Corporation, Nutley, N.J.

Filed Dec. 17, 1969, Ser. No. 885,775
Int. Cl. H04b 1/59, 7/20
U.S. Cl. 325—63 8 Claims



An oscillator in a spacecraft transponder or repeater is frequency stabilized by a phase locked loop with reference

signal therefor having a frequency (N/M) F being received in the repeater from a ground station. The reference signal is processed in the repeater and returned to the ground station where it is monitored to detect when the pull-in range of the loop is exceeded. When this condition is detected, the frequency of the reference signal is swept in the ground station until the frequency of the reference signal and frequency of the signal of the oscillator in the repeater is within said pull-in range. The oscillator frequency F is divided by M and the phase comparator includes a first tuned input circuit to respond to a frequency (N/M) F, a second turned input circuit to respond to the *n*th harmonic of the frequency F/M and a phase error detecting circuit to produce a control signal used to stabilize the frequency of the oscillator.

3,683,280

SHARK REPELLING DEVICE INCLUDING PULSE GENERATOR PRODUCING ELECTRICAL FIELD IN WATER BETWEEN WIDELY SPACED ELECTRODES

John K. Holt, Clearwater, Fla., assignor to Electromagnetic Industries, Incorporated, Clearwater, Fla.

Continuation-in-part of Ser. No. 64,070, July 27, 1970, abandoned. This application Nov. 9, 1971, Ser. No. 196,908

Int. Cl. H05c *1/04;* **H04b** *1/02;* **A01k** *75/00*

U.S. Cl. 325—116 **6 Claims**

A sealed, water-proof housing encloses an inverter which is energized from a direct current source, such as a relatively low voltage battery in the housing, and has a secondary winding connected to opposite input terminals of a full wave rectifier, also enclosed in the housing. One DC output terminal of the rectifier is connected directly to an output terminal for a first electrode, and the other DC output terminal is connected to an output terminal for a second electrode. The first and second electrodes are spaced widely apart in the water, as by being trained along opposite edges of a trawl net or "bag." Preferably, two pairs of electrodes are used, with corresponding polarity electrodes being connected to the same output terminal. The housing is attached to the net at a midpoint, with one pair of electrodes extending forwardly and the other pair extending rearwardly. A power capacitor is connected across the DC output terminals, and a variable resistor is connected between one AC input terminal of the rectifier bridge and the gate of the SCR. The SCR, during each alternate half cycle of AC potential applied to the input terminals of the rectifier bridge, is gated conductive through the variable resistor to discharge the power capacitor through the electrodes and the body of water therebetween to establish an electric field in the body of water. The potential across the power capacitor rapidly decreases to a value at which the SCR becomes non-conductive to interrupt the electric field. The charging of the capacitor and the discharge thereof is repeated cyclically. The battery in the housing is re-chargeable.

3,683,281

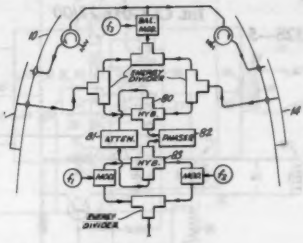
CRAB ANGLE SENSING SYSTEM

Chester B. Watts, Jr., Annandale, Va., assignor to Scanwell Laboratories, Inc., Springfield, Va.

Filed Oct. 13, 1969, Ser. No. 865,870

Int. Cl. H04b *7/08*

U.S. Cl. 325—312 **5 Claims**



A six-sided antenna of substantially rectangular cross-section made up of a thin metal foil firmly attached to a base of insulating material on four of the six sides. One side of the base not covered by foil is attached to the airframe of an aircraft at approximately the plane of symmetry of the upper and lower halves of the airframe, while the other uncovered side is faced forward toward the nose. A second antenna is similarly constructed and positioned so that the two antennas may each receive signals from a ground source in order to determine crab angle. A second source, airborne, supplies equal signals to the respective antennas in order to provide a check on the accuracy of the reading from the ground source.

Signal processing circuitry, including plural modulating and demodulating elements, are employed for determining crab angle, and for verifying system operability.

3,683,282

PROCESS AND AUTOMATIC DEVICE FOR SIGNAL-TO-NOISE RATIO MEASUREMENT OF A TELEVISION SIGNAL

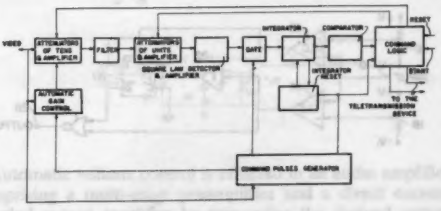
Paolo D'Amato, p.zza Pittagora 18, and Gastone Zetti, Curso Agnelli 42, both of Torino, Italy

Filed Jan. 28, 1970, Ser. No. 6,488

Claims priority, application Italy, Feb. 4, 1969, 50439 A/69

Int. Cl. H04n *5/52;* **G01r** *27/00*

U.S. Cl. 325—363 **10 Claims**

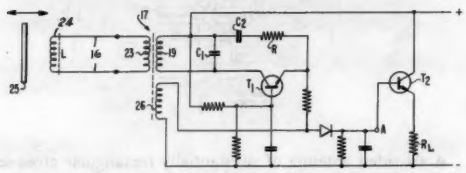


Process and device for automatically measuring the signal-to-noise ratio of a television signal wherein the noise is extracted from the transmitted television signal during the blanking interval, i.e., the interval marked by the absence of a video signal. The noise is subjected to amplification and successive attenuation of pre-selected values changed step by step until the noise power is caused to be equal to a pre-selected threshold value. The proper circuitry logic automatically varies the attenuation and computes the signal-to-noise ratio of said television signal from the final attenuation value.

3,683,283
ROTARY ACCELERATION INDICATOR, ESPECIALLY FOR MOTOR VEHICLES

Hans-Jorg Florus, Goppingen, and Horst Grossner, Geradstetten, both of Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany

Filed Feb. 13, 1970, Ser. No. 11,153
Claims priority, application Germany, Feb. 14, 1969, P 19 07 392.8
Int. Cl. G01n 27/00
U.S. Cl. 328—5 23 Claims

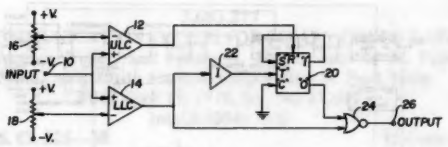


A pulse transmitter which responds upon exceeding a predetermined rotary acceleration, especially for motor vehicles in which a rotating mass is coupled by way of a spring with the rotating system whereby the rotation of the rotating mass with respect to the rotating system serves as measurement for the rotary acceleration; a shifting device, associated with the rotating mass, is connected with the secondary winding arranged in the rotating part of a contactless transmitter whose primary winding is arranged in the fixed part and is connected with a transistorized high-frequency generator for producing a signal.

3,683,284
PULSE HEIGHT ANALYZER

Peter G. Mueller, Guilford, Conn., assignor to Picker Corporation, White Plains, N.Y.

Filed June 25, 1968, Ser. No. 739,793
Int. Cl. H03k 5/20
U.S. Cl. 328—117 14 Claims

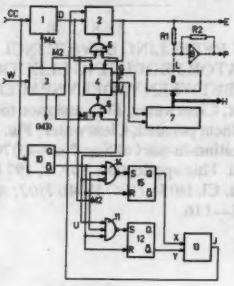


An apparatus for selecting signals of a predetermined amplitude range from signals received from a nuclear energy detector. An input signal produces both lower and upper level signals when the input signal amplitude exceeds a predetermined upper level. The upper and lower level signals selectively actuate a flipflop, which serves as a memory. The lower level signal and output signal of the flipflop energize a gate which provides an output signal only when the amplitude of an input signal lies between the predetermined lower and upper amplitude levels. The gate prevents an output signal when the input has an amplitude greater than the upper level.

3,683,285
METHOD OF AND APPARATUS FOR DETERMINING THE DIFFERENCE IN PHASE BETWEEN TWO PERIODIC ELECTRICAL SIGNALS HAVING ESSENTIALLY THE SAME FREQUENCY

Peter J. Wild, Wettingen, Switzerland, assignor to Aktiengesellschaft Brown, Boveri & Cie, Baden, Switzerland

Filed Jan. 28, 1971, Ser. No. 110,552
Claims priority, application Switzerland, Feb. 5, 1970, 1643/70
Int. Cl. H03d 13/00
U.S. Cl. 328—133 8 Claims



A method for determining the phase shift between two periodic signals having essentially the 1"as a first 0"the two signals into corresponding rectangular voltage waveforms. The interval between homologous edges of the two rectangular waveforms corresponding to the phase difference is converted into a pulse-duration-modulated rectangular signal which is fed to an integrate-and-hold circuit which produces at its output an amplitude-modulated signal proportional to the phase difference that is held for a certain period of time following completion of the integration. A sampling command furnished by a sequence control unit is fed to a sample-and-hold circuit which permits transfer to it of the signal from the output of the integrate circuit. Ahead of the sampling command, the sequence control unit generates a comparison command to a transient detector having a voltage threshold with which there is compared an "old" value of the amplitude-modulated signal corresponding to the last phase difference stored in the sample-and-hold circuit and a "new" value corresponding to the present phase difference at the output of the integrate circuit so that exceeding the threshold level of the detector serves as a criterion for determining a voltage transient corresponding to a 2π-transition. Depending upon the result of the comparison, logic "1" or "0" signals appear at the outputs of the transient detector which are then fed to, and added in, a reversible counter which thus keeps track of the algebraic sum of the integer 2π-transitions.

3,683,286
Patent Not Issued For This Number

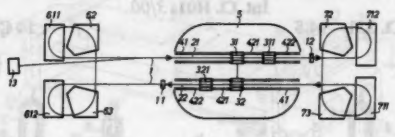
3,683,287
HEAVY ION ACCELERATOR

Horst Miessner, Karlsruhe, Germany, assignor to Gesellschaft fur Kernforschung mbH, Karlsruhe, Germany

Filed July 16, 1970, Ser. No. 55,552
Claims priority, application Germany, July 16, 1969, P 19 36 102.5
Int. Cl. H05h 9/00
U.S. Cl. 328—233 6 Claims

The invention relates to a heavy ion accelerator with an electrostatic tandem arrangement with a straight acceleration tube in whose central section kept at a high potential a gas

charge exchange device is installed for the attachment of electrons, with one magnetic mirror each at each end of the tandem arrangement each of which consists of several sectors arranged symmetrical to the longitudinal axis of the tandem arrangement and which deflect the ions after each passage through a straight section of the trajectory in one direction so as to make them pass through the same straight section section of the trajectory in the reverse direction so that the trajectory



of the ions follows an infinite line closed in itself, and having foils for stripping the electrons from the ions which are arranged in the trajectory of the ions in such a way that the ions traverse a foil twice between two straight passages each through the tandem assembly in such a way that the gain in energy of the accelerating section of the tandem assembly is higher than the energy loss in the decelerating section of the same assembly after passage through the gas charge exchange device.

3,683,288

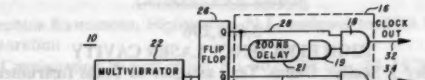
FREQUENCY MODULATION DEMODULATOR

Joseph E. Curry, Houston, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed July 31, 1970, Ser. No. 59,890

Int. Cl. H03k 9/00

U.S. Cl. 329—104 **10 Claims**



A self-clocking system for extracting from a composite signal, data and clock signal separation in a frequency modulation data system. The clock signal is separated from the data signal in order to use it to clock the data into and/or out of registers and other elements in the system. The demodulator system contains a synchronized multivibrator or other oscillator which tracks with any reasonable change in character or frequency of the composite frequency modulated signal generated, for example, from a recording medium such as a magnetic disc, drum or tape. If the frequency changes, or a clock pulse is not present for one bit cell, the multivibrator or oscillator maintains the integrity of the signals on the demodulator outputs and by coupling the multivibrator or other oscillator output to a flip-flop and further coupling the outputs of the flip-flop to appropriate logic circuitry, clock and data separation is thereby obtained.

3,683,289

TRANSISTOR AMPLIFIERS

Ernest W. Rogers, Horley, and Lewis P. Learney, Crawley Down, both of England, assignors to Redifon Limited, London, England

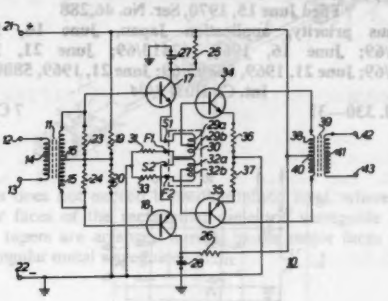
Filed May 19, 1970, Ser. No. 38,726

Claims priority, application Great Britain, July 14, 1969, 35,346/69

Int. Cl. H03f 3/26

U.S. Cl. 330—15 **4 Claims**

A transistor push-pull amplifier having a Class A transistor pair driving a Class B transistor pair by way of an interstage inductive coupling comprising a pair of mutually coupled tapped windings, the said windings being connected in the Class A circuits and those portions between the taps and corresponding ends of the winding being also connected in the Class B circuits.



3,683,290

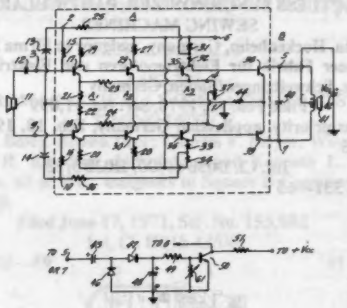
AUTOMATIC VOLUME CONTROL THROUGH PREAMPLIFIER SUPPLY VOLTAGES

Frank A. Herrmann, Hartsdale, and Zygmund Shabad, New York, both of N.Y., assignors to Gould Inc., Chicago, Ill.

Filed Nov. 13, 1970, Ser. No. 89,348

Int. Cl. H03f 3/26; H03g 3/30

U.S. Cl. 330—15 **2 Claims**



Automatic volume control is effected in an audio amplifier comprising a multi-stage preamplifier and a direct current coupled output amplifier by processing the derived output signal to modify the preamplifier supply voltage.

3,683,291

Patent Not Issued For This Number

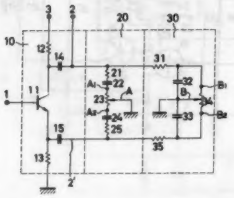
3,683,292

Patent Not Issued For This Number

3,683,293
TONE CONTROL CIRCUIT

Teruyoshi Matsui, Hamamatsu, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu-shi, Shizuoka-ken, Japan

Filed June 15, 1970, Ser. No. 46,288
Claims priority, application Japan, June 16, 1969, 47412/69; June 16, 1969, 47413/69; June 21, 1969, 58802/69; June 21, 1969, 58803/69; June 21, 1969, 58804/69
Int. Cl. H03f 3/04
U.S. Cl. 330—31 7 Claims

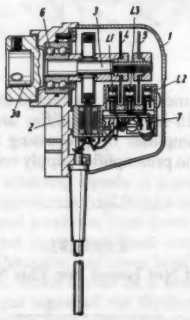


A tone control circuit used in a stereo amplifier, guitar amplifier, or the like, comprising an amplifier having a first terminal and a second terminal for delivering outputs in an opposite phase relation, a plurality of circuit branches connected across the first and the second terminals for controlling tone level in the corresponding frequency ranges, and variable elements included in said plurality of circuit branches and each having a movable contact terminal connected to the ground, so that the ratio between the load impedances connected to the first and the second output terminals of the amplifier can be varied by varying the position of the movable contact terminal on either one of the variable elements, whereby the gain of the amplifier can be controlled by varying the impedance ratio in a desired frequency range.

3,683,294
CONTACTLESS SYNCHRONIZER, PARTICULARLY FOR SEWING MACHINES

Hans Gaa, Hockenheim, Germany, assignor to Firma Frankl & Kirchner Fabrik fur Elektromotoren und Elektrische Apparate, Schweitzingen/Baden, Germany

Filed Feb. 13, 1970, Ser. No. 11,099
Claims priority, application Germany, Feb. 18, 1969, P 19 07 975.5
Int. Cl. D05b 69/00; H03b 5/12
U.S. Cl. 331—65 6 Claims

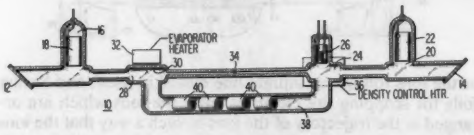


Synchronizer without contacts, particularly for sewing machines, utilizes a unitary assembly of rotating position indicators for reducing flux changes in a common field and a transistorized oscillating circuit for converting the flux changes into separate signals for different control functions.

3,683,295
GAS LASER DISCHARGE TUBE

Karl Gerhard Hernqvist, Princeton, N.J., assignor to RCA Corporation

Filed May 8, 1970, Ser. No. 35,692
Int. Cl. H01s 3/00
U.S. Cl. 331—94.5 14 Claims

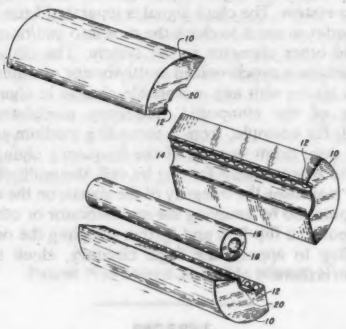


In a gas laser discharge tube, such as a He-Cd laser discharge tube, where the active lasing gas is cataphoretically transported from the anode region toward the cathode region during the occurrence of a discharge, a diffusion return path is provided between the cathode region and the anode region. The return path has conductive means located therein to prevent a discharge within the return path, but still permit the diffusion of gas therethrough. In the case where the cataphoretically transported gas is a metal vapor, a density control heater may be placed in the vicinity of the cathode to maintain the density of metal vapor molecules in the cathode vicinity at that value which results in a minimum amount of unwanted noise being generated.

3,683,296
HIGH EFFICIENCY LASER CAVITY

Stanley J. Scalise, Dallas, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Oct. 13, 1970, Ser. No. 80,423
Int. Cl. H01s 3/02
U.S. Cl. 331—94.5 7 Claims

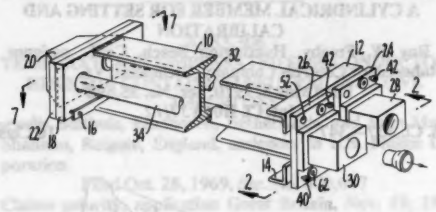


A plurality of structural members form a laser cavity structure which has an inner cylindrical surface in which grooves have been formed for mounting light emitters. Other portions of the inner surface of the cavity are coated with a highly light reflective layer. Selected portions of the cavity wall contact the laser rod assembly which is positioned within the cavity and can be used as a heat sink for both the light emitter arrays and the laser rod assembly. Additional cooling for tubular laser rods is provided by a rod-like heat sink mounted concentric with the tubular rod.

3,683,297
OPTICAL CAVITY FOR A LASER

James Lee Hobart, and Wayne S. Mefferd, both of Palo Alto, Calif., assignors to Coherent Radiation Laboratories

Filed Nov. 22, 1968, Ser. No. 778,072
Int. Cl. H01s 3/00
U.S. Cl. 331—94.5 6 Claims

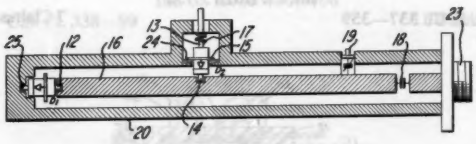


A folded gas laser having improved mirror mounting means in which: (1) optical alignment can be adjusted with two adjustable end mirrors without adjusting a corner block folding mirror assembly; (2) a ceramic corner block provides rigid and accurate support for folding mirrors while permitting direct water cooling of the corner block; (3) an improved mirror mount supports the mirrors in communication with the lasing medium, and (4) an improved orthogonal adjustment is provided for each end mirror consisting of a pivot pin, a pair of adjusting screws, and an antirotation strap.

3,683,298
MICROWAVE APPARATUS USING MULTIPLE AVALANCHE DIODES OPERATING IN THE ANOMALOUS MODE

Hirohisa Kawamoto, Hightstown, N.J., assignor to RCA Corporation

Continuation-in-part of Ser. No. 102,390, Dec. 29, 1970, abandoned. This application March 31, 1971, Ser. No. 129,805
Int. Cl. H03b 7/06
U.S. Cl. 331—107 R 7 Claims



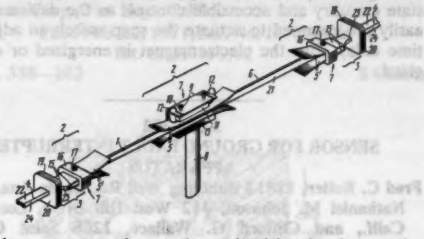
The terminals of a first avalanche diode are shunt coupled to a microwave transmission line. The terminals of opposite polarity of at least one other avalanche diode are also shunt coupled to the microwave transmission line. Complementary microwave circuitry and proper location within a suitable microwave resonant circuit enables the multiple avalanche diodes to operate in the anomalous mode in an oscillator, amplifier, or frequency multiplier when reversed biased by an appropriate signal.

3,683,299
SUPER-HIGH FREQUENCY TRANSMISSION LINE

Viktor Feodosievich Vzyatyshev; German Danilovich Rozhkov; Boris Ivanovich Ryabov, all of Moscow, and Vasily Semenovich Udovenchik, Vilnjus, all of U.S.S.R., assignors to Moskovsky Ordena Lenina Emergetichesky Institute, Moscow, U.S.S.R.

Filed March 29, 1971, Ser. No. 128,852
Int. Cl. H01p 3/16; H03h 13/06
U.S. Cl. 333—95 S 2 Claims

A super-high frequency transmission line in which each retaining member of a rectangular dielectric waveguide consists of metal plates pressed against the minor faces of the rectangular dielectric waveguides, the ends of the plates being bent away from these faces so that the reflection from the

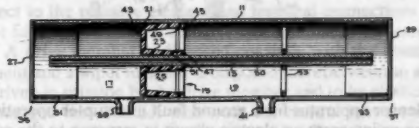


plates does not exceed a predetermined level, whereas the major faces of the rectangular dielectric waveguide in the horn tapers are arranged normal to the major faces of the rectangular metal waveguide.

3,683,300
LASER CAPILLARY SUPPORT SPACER

Jack H. Hohenstein, 1234 Laurel Lane, Lafayette, Calif.

Filed Aug. 19, 1970, Ser. No. 65,018
Int. Cl. H01s 3/02, 1/06
U.S. Cl. 331—94.5 9 Claims

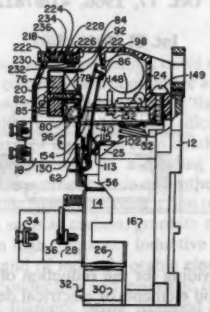


A laser is described in which a diaphragm of flexible electrically non-conductive material is used to at least partially support an elongated capillary within a tubular glass envelope. The diaphragm separates the glass envelope into positive and negative discharge chambers and is in the shape of an annular channel member with inner and outer annular walls. Such walls engage the capillary and the inner surface of the envelope, respectively, along a length sufficient to prevent discharge between the positive and negative discharge chambers.

3,683,301
ELECTROMAGNETICALLY OPERATED SOLID STATE TIMING DEVICE

Robert D. Boley, Brown Deer; Charles F. Meyer, Wauwatosa; Rudolf H. Kiessling, Milwaukee, and Kenneth L. Paape, Mequon, all of Wis., assignors to Square D Company, Park Ridge, Ill.

Filed June 17, 1971, Ser. No. 153,982
Int. Cl. H01h 43/00
U.S. Cl. 335—59 11 Claims



An electromagnetically operated solid state timing device having switching contacts and features which will permit the

device to act as a direct replacement for an electromagnetically operated pneumatic timer. The device includes an electromagnet, a permanent magnet latch, a snap switch, solid state circuitry and accessible controls so the device may be easily programmed to actuate the snap switch an adjustable time delay after the electromagnet is energized or deenergized.

3,683,302

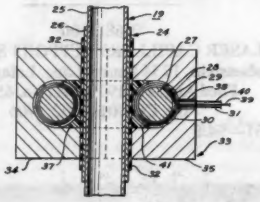
SENSOR FOR GROUND FAULT INTERRUPTER APPARATUS

Fred C. Butler, 12812 Bubbling Well Rd., Santa Ana, Calif.; Nathaniel M. Johnson, 312 West Hill Drive, Los Gatos, Calif., and Clifford G. Wallace, 1208 Saint Charles, Alameda, Calif.

Filed Dec. 15, 1970, Ser. No. 98,416

Int. Cl. H01c *15/04*

U.S. Cl. 336—83 **10 Claims**



Sensor apparatus for a ground fault interrupter operative to open or interrupt an electric circuit in response to the occurrence of a ground fault therealong. The sensor apparatus is operative to detect differences in the mangitudes of the currents respectively flowing in the entrance and return paths of an electric power circuit having at least a pair of conductors providing such paths; and it includes magnetic and electrostatic shield structure adapted to pass such conductors therethrough to form the primary winding of a differential transformer, and it further includes a transformer core coaxially related to the shield structure and equipped with a secondary winding to define a differential transformer in conjunction with the power conductors.

3,683,303

COMPOUND FOR ELECTRIC DEVICES

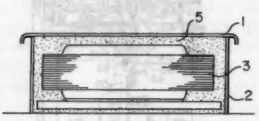
Hiroyoshi Ayano; Yasuaki Kibino; Hiroyoshi Sato; Yukihiko Ohta, and Minoru Fukuhara, all of 1048 Oaza Kakoma, Kadoma-shi, Osaka, Japan

Continuation-in-part of Ser. No. 626,751, March 29, 1967, abandoned. This application Aug. 6, 1970, Ser. No. 61,776

Claims priority, application Japan, April 4, 1966, 41/21071; Oct. 7, 1966, 41/65655; Oct. 11, 1966, 41/67353; Oct. 17, 1966, 41/67821; Oct. 17, 1966, 41/67822; Nov. 9, 1966, 41/73729

Int. Cl. H01f *15/02*

U.S. Cl. 336—96 **5 Claims**



A method providing for the reduction of noise originating from core-and-coil elements of electrical devices by encasing the core-and-coil elements within a chemical compound combination comprising at least two organic compounds, the combination having large *d*-loss factor values at starting and stabilization temperatures, respectively, of the core-and-coil elements. A typical mixture comprises an unsaturated polyester and a polyurethane.

3,683,304

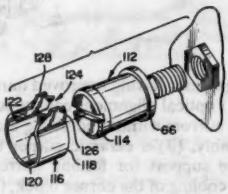
TEMPERATURE CALIBRATION ASSEMBLY HAVING ADJUSTMENT MEMBER FRICTIONALLY ENGAGED BY A CYLINDRICAL MEMBER FOR SETTING AND CALIBRATION

Le Roy W. Freeby, Huntington Beach, Calif., assignor to Robertshaw Controls Company, Richmond, Va.

Filed May 8, 1970, Ser. No. 35,698

Int. Cl. H01h *37/12*

U.S. Cl. 337—347 **16 Claims**



A clutch spring for use in a calibration assembly including a sleeve-like body having first and second longitudinal edges spaced from each other and a leg extending from one of the longitudinal edges to form a stop. The calibration assembly includes the above described clutch spring gripping a cylindrical clutch surface of a rotatable adjustment member which is adapted to engage a thermostat of the type operating a control device in response to temperature variations and a temperature adjusting device controlling the position of the adjustment member.

3,683,305

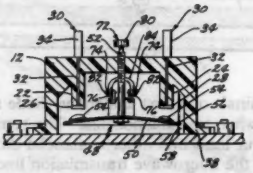
PROTECTIVE DEVICE FOR AIR CONDITIONERS

Robert A. Gray, 1913 E. 9th, Des Moines, Iowa

Filed July 24, 1970, Ser. No. 58,121

Int. Cl. H01h *37/52*

U.S. Cl. 337—359 **7 Claims**



A protective device for air conditioners includes a dialectric housing having a pair of terminals separately mounted therein. A metal connector plate is also mounted within the housing and is tempered so as to bend when exposed to a predetermined temperature from a normal position wherein it engages both of the terminals and completes the electric connection therebetween to an open circuit position wherein it is free from electrical contact with at least one of the terminals. At least one catch is provided on the housing and is adapted for retentively engaging and holding the connector plate in its open circuit position in response to movement of the connector plate to this position. The catch is movable out of retentive engagement with the connector plate, but is urged into retentive engagement by a spring. A reset mechanism is connected to the catch and is adapted to urge the catch out of retentive engagement with the connector plate in response to manual manipulation. The protective device includes means for

mounting it upon the casing surrounding an air conditioner compressor and electric motor, and is adapted to sense the heat emanating from the compressor and motor. The terminals of the protective device are connected in series with a power source and the electric motor so that upon sensing a predetermined temperature the protective device breaks the circuit between the power source and the electric motor.

3,683,306

TEMPERATURE COMPENSATED SEMICONDUCTOR RESISTOR CONTAINING NEUTRAL INACTIVE IMPURITIES

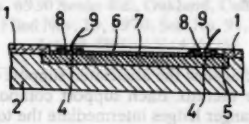
Kornelis Bulthuis, Eindhoven, Netherlands, and John Martin Shannon, Reigate, England, assignors to U.S. Philips Corporation

Filed Oct. 28, 1969, Ser. No. 870,047

Claims priority, application Great Britain, Nov. 19, 1968, 54,876/68

Int. Cl. H01c 7/06

U.S. Cl. 338—7 **6 Claims**



A temperature compensated semiconductor resistor is described wherein electrically inactive neutral impurities are included in the semiconductor. The neutral impurities do not contribute free carriers to offset mobility reduction due to lattice scattering, but instead provide an impurity scattering dependence that temperature compensates.

3,683,307

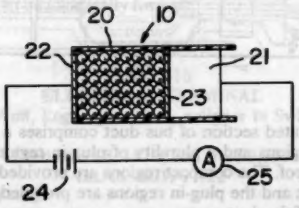
SPHERICAL ELECTRONIC COMPONENTS

James A. Patterson, Los Altos, Calif., assignor to Sondell Research & Development Co., Palo Alto, Calif.

Filed May 22, 1968, Ser. No. 731,241

Int. Cl. H01c 9/00, 9/06

U.S. Cl. 338—99 **11 Claims**



Electronic components are constructed from a solid spherical core of electrically nonconducting material such as a stabilized crosslinked copolymer plastic. The spherical core is coated with a plurality of concentric electrically functional layers to provide a variety of electronic components such as resistors and capacitors having pressure sensitive electrical characteristics. More complex electronic components such as transistors, thermistors, rectifiers and thermocouples may be provided depending upon the configuration and composition of concentric layers on the spherical core. A plurality of spheres may be combined in a pressure chamber to provide a variety of transducers and detectors such as a pressure transducer, photosensitive detector, infrared detector or memory cell bank.

3,683,308

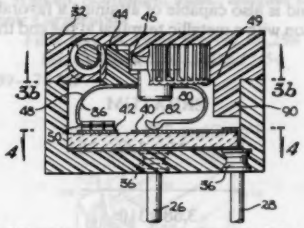
POTENTIOMETERS

Arthur L. Hamill, Los Angeles, Calif., assignor to Techo-Components Corp., Van Nuys, Calif.

Filed Feb. 22, 1971, Ser. No. 117,500

Int. Cl. H01c 9/02

U.S. Cl. 338—162 **8 Claims**



Potentiometers having a reduced number of parts and an improved wiper design suitable for manufacture in a miniaturized form. The resistance element is a conductive film disposed in a circular arc on a ceramic substrate. The substrate also has a conductive pad disposed concentrically with respect to the resistive element and terminal connections are made for each end of the resistive element and to the central pad. A drive member is disposed coaxially with the resistive element and a wiper member is disposed therebetween so as to be driven in rotation by the drive member and to be elastically encouraged into contact with both the central contact area and to the resistive element through a plurality of wiper contacts. A single turn model having a positive stop and two multiple turn models having a clutching means driving the wiper member are disclosed.

3,683,309

HIGH FREQUENCY NOISE PREVENTION CABLE

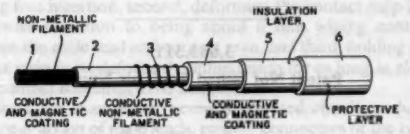
Masanao Hirose, Tokyo, Japan, assignor to Yazaki Corporation, Tokyo, Japan

Filed Jan. 14, 1971, Ser. No. 106,453

Claims priority, application Japan, March 20, 1970, 45/23388

Int. Cl. H01c 3/02

U.S. Cl. 338—214 **5 Claims**



A high frequency noise prevention cable comprising a non-metallic filament coated with a conductive and magnetic coating layer composed of one selected from the group of a magnetic metal, metallic oxide and metallic silicate, which may be employed alone except the metal or in combination, and non-metallic particles dispersed in a binding agent of a high frequency inductive synthetic resin or synthetic rubber; a conductive non-metallic filament having a film of conductive non-metallic particles such as carbon, graphite etc. dispersed in a binding agent of a high frequency inductive synthetic resin or synthetic rubber and of more favorable electric conductivity than the former conductive and magnetic coating layer, said first non-metallic filament being wrapped with said second non-metallic filament; a conductive, magnetic and flexible coating layer composed of one selected from the group of a

magnetic metal, metallic oxide and metallic silicate, which may be employed alone except the metal or in combination, and conductive non-metallic particles such as carbon, graphite etc. dispersed in a binding agent of vulcanized rubber, said conductive, magnetic and flexible coating layer being formed around said wrapped non-metallic filament; and a rubber coating having an insulating property and another rubber coating for protection being formed therearound. Such a cable is capable of preventing noises in every range of high frequency and is also capable of attaining a favorable electrical connection with a metallic terminal at the end thereof.

ERRATUM

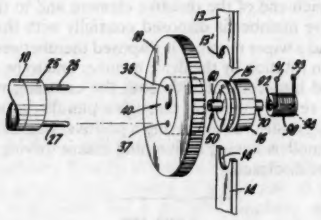
For Class 338—322 see:
Patent No. 3,683,361

3,683,310

PRINTER APPARATUS ROTATING CYLINDER LAMP CONNECTOR

Patrick F. McPherson, Deep River, Conn., assignor to Blu-Ray, Incorporated, Essex, Conn.

Filed Nov. 5, 1970, Ser. No. 87,103
Int. Cl. H01r *39/46*
U.S. Cl. 339—8 L **5 Claims**



In a printing apparatus of the type in which a rotating cylindrical lamp, having a pair of bayonet connectors at the ends thereof is to be provided with electricity, an arrangement is described which includes a pair of lamp-end-disposed coaxial rotating couplers. Interposed between the coaxial couplers and the lamp ends are a pair of bayonet-to-coaxial converters adapted to couple with the physically mismatched bulb bayonets and coaxial coupling.

3,683,311

Patent Not Issued For This Number

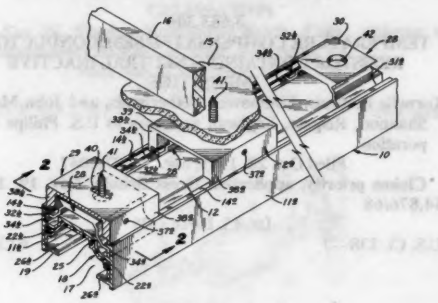
3,683,312

MOUNTING STRUCTURE FOR A POWER TRACK

Larry L. Routh, Castro Valley, and James Contratto, Livermore, both of Calif., assignors to U. S. Industries, Inc., New York, N.Y.

Filed Nov. 2, 1970, Ser. No. 85,868
Int. Cl. H01r *9/00*
U.S. Cl. 339—21 R **4 Claims**

A structure for mounting the elongated, conductor-equipped track component for a power distribution system along the outer surface of a ceiling wall. Such tracks are long rigid components of the type providing an essentially continuous convenience outlet enabling electric plugs to be connected thereto at substantially any selected location therealong, and any system usually includes a plurality of track components interconnected in axially succession one with another. The mounting structure therefor comprises a plurality of inverted, generally U-shaped hanger components adapted to be fixedly attached to the ceiling wall at spaced apart locations therealong and in axial alignment. Each hanger component defines a cavity adapted to seat therein the upper end portion of a support component which is provided along its opposite sides with generally V-shaped recesses extending substantially from end-to-end thereof, and which recesses receive set screws carried by each hanger component which



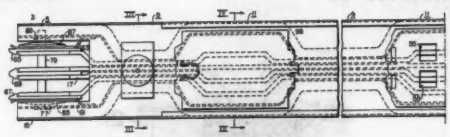
can be tightened against the associated support component to attach the same thereto. Each support component has outwardly turned hanger ledges intermediate the top and bottom thereof which slidably engage complementary inwardly turned hanger lips provided by the track component. Accordingly, each track component is attached to the ceiling wall via the support and hanger components.

3,683,313

PLUG-IN BUS DUCT WITH HEAT DISSIPATION MEANS

Charles L. Weimer, Beaver Falls, and Samuel S. Fouse, Aliquippa, both of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed May 24, 1971, Ser. No. 146,204
Int. Cl. H01r *13/60*
U.S. Cl. 339—22 B **10 Claims**



An elongated section of bus duct comprises a plurality of compact regions and a plurality of plug-in regions along the length thereof. The compact regions are provided for dissipation of heat and the plug-in regions are provided for tapping power off of the duct.

3,683,314

CABLE JUNCTION BOX

Luejene Elkins, Chicago, Ill., assignor to The Bunker-Ramo Corporation, Oak Brook, Ill.

Filed Jan. 21, 1971, Ser. No. 108,275
Int. Cl. H01r *13/44*
U.S. Cl. 339—39 **5 Claims**

Housing for a plurality of elongated cable junction connectors of different heights provides a box with a snap-on cover which, when closed, retains connectors in assembled relation. Ribs in the cover adjacent to the ends of connectors engage high profile connectors directly. Slots are provided in the ribs, and removable spacer blocks are provided to be manually

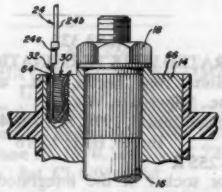
push fitted into appropriate slots. When so inserted they will engage and retain low profile connectors. The cover has a

positive hook engagement with the box at the cable-entry end, and a snap detent latch at the opposite end.

3,683,315
SHIELDED HEAVY DUTY CABLE CONNECTOR
William Kelly, 6930 Snake Rd., Oakland, Calif.
Filed Nov. 19, 1970, Ser. No. 91,116
Int. Cl. H01r *13/44, 13/62*
U.S. Cl. 339—42 **4 Claims**

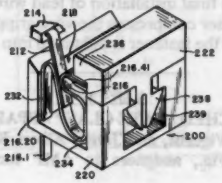
A heavy duty electrical cable connector having an electrically insulating housing and an electrical terminal mounted therein in a fixed predetermined orientation to the housing, the housing being provided with a shielding sleeve around the terminal, and indexing means provided on the sleeve to mate with a second connector and index the terminal for electrical connection to the second connector is disclosed. Preferably a pair of connectors each having axially resiliently compressible sleeves thereon and formed to secure the terminals against movement of the housing relative to the terminals is provided. The indexing means may be a pair of mating protrusions and recesses formed in the end walls of the sleeves, allowing both connectors to be identically formed.

3,683,316
ELECTRICAL TERMINAL
Walter A. Wolf, Logansport, Ind., assignor to Switches Incorporated
Filed Dec. 18, 1970, Ser. No. 99,393
Int. Cl. H01r *11/22*
U.S. Cl. 339—72 **10 Claims**



An electrical terminal interconnecting two conductive members which includes a threaded opening extending from a surface of one of the members and a resilient elongated conductive strip having spaced legs with one leg connected to the second conductive member and the other leg having latch means cooperating with the thread to releasably lock the second conductive member to the first conductive member.

3,683,317
MINIMAL INSERTION FORCE CONNECTOR
William B. Walkup, Southboro, Mass., assignor to Cambridge Thermionic Corporation
Filed July 20, 1970, Ser. No. 56,298
Int. Cl. H05k *1/07;* **H01r** *13/54*
U.S. Cl. 339—75 MP **15 Claims**



An electrical connector of the type receiving a male component lead is characterized by imposition of extremely small or no insertion forces on the male lead in order to make electrical connection. An elastically deformable contact strip forms at least one side of a cavity, and means are provided for deforming the contact strip in a lengthwise direction. When the contact strip is in its relaxed state, the male lead can be inserted freely in the cavity alongside the strip without significant insertion force. The contact strip has a curved portion with a contact area facing the inserted male lead, and a compressible portion connected at one end to the curved contact portion and being substantially fixed with respect to the cavity at the other end. As the contact strip is deformed lengthwise, the contact area tends to expand across the cavity to exert a contact force against the male lead, and the compressible portion shrinks in its lengthwise dimension, thereby wiping the contact area along the male lead for reliable film-removing electrical contact. The contact strip, in some examples, is formed with a portion having a second contact area which resiliently touches the opposite side of the male lead from that contacted by the first contact area.

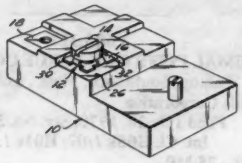
Use of the foregoing connector involves first, inserting the male lead while the contact strip is in its relaxed state, permitting free insertion, second, deforming the contact strip in a lengthwise direction to being about a film wiping contact between the male lead and contact area, and third, holding the contact strip in its deformed configuration for as long as electrical contact is desired to be maintained.

Sockets, for example to receive integrated circuit modules with linear arrays of male leads, employ connectors of the type described in multiple configuration, with cavity means positioned for receiving the male leads, a plurality of contact strips deformable lengthwise to yield the firm wiping contact described above, movable means for simultaneously deforming a plurality of the contact strips, and fastener means, such as screws, for holding the contact strips in deformed configuration.

3,683,318
WIRE CONNECTOR STRUCTURE
Edward G. Them, Mansfield, Ohio, assignor to Thermo-O-Disc, Incorporated, Mansfield, Ohio
Filed Feb. 11, 1970, Ser. No. 10,512
Int. Cl. H01r *9/10*
U.S. Cl. 339—95 R **7 Claims**

A wire connector assembly including a fastener and a clip providing four wire gripping arms is disclosed. The arms are

symmetrically positioned about a hole in the base of the clip through which the shank portion of the fastener extends to the terminal base plate. The clip is formed of a metal having sufficient stiffness to hold the fastener in place when it is initially



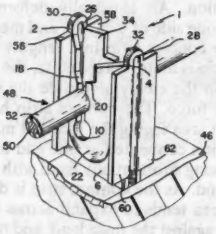
assembled contacting the head portion of the fastener against the aRms. Upon final installation of lead wires, the head portion of the fastener compresses the wire gripping arms against the lead wires as the fastener is tightened into position.

3,683,319

NOTCHED PLATE CLASP APPARATUS

George Henry Vigeant, and James Albert Kloth, both of St. Petersburg, Fla., assignors to AMP Incorporated, Harrisburg, Pa.

Filed Oct. 27, 1970, Ser. No. 84,286
Int. Cl. H01r *11/20*
U.S. Cl. 339—97 R **14 Claims**



A clasp apparatus including two pairs of cantilever flanges which provide resilient cantilever action to resiliently grip and clasp a length of strand material inserted therebetween. The flanges are provided with slicing edges which slice and partially penetrate into the strand material. The flanges are further mounted on webs spanning between uprights which themselves are deformable in resilient cantilever action for applying compression on the gripped and clasped strand material. Alternatively, the uprights may be provided with stiffeners for reducing the cantilever action thereof. The first pair of flanges cooperate with the second pair of partially compress a longitudinal portion of the strand material spanning between the pairs of flanges.

ERRATUM

For Class 339—114 see:
Patent No. 3,683,331

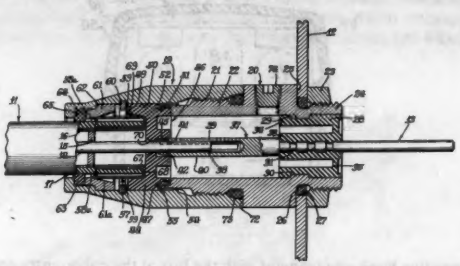
3,683,320

COAXIAL CABLE CONNECTORS

Gerald F. Woods, King, Ontario, and Robert Weaver, Agincourt, Ontario, both of Canada, assignors to The Bunker-Ramo Corporation, Oak Brook, Ill.

Filed May 8, 1970, Ser. No. 35,715
Int. Cl. H01r *17/04*
U.S. Cl. 339—177 E **12 Claims**

Coaxial cable connectors in which a clamping member is carried within a cap member and is arranged to cam wall means of a central conductor, supported within a body member, into engagement with an end portion of a cable center conductor when the cap member is moved in a connecting direction relative to the body member. In one embodi-



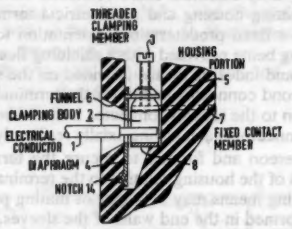
ment, a ferrule member within the cap member has a plurality of finger portions cammed by cam means within the cap member into engagement with the outer surface of the cable, an inner wall portion of the ferrule member being fitted within an end portion of the cable outer conductor.

3,683,321

FRAME CLAMP FOR ELECTRICALLY CONNECTING ELECTRICAL LEADS

Gunther Rauter, and Edgar Wiessner, both of Amberg, Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Germany

Filed June 17, 1970, Ser. No. 46,998
Int. Cl. H01r *9/08*
U.S. Cl. 339—217 R **5 Claims**



A plate-like diaphragm member has an insertion opening formed therethrough corresponding to and cooperating with the funnel of a housing for a free clamp when the diaphragm member is in position in the housing. A clamping body is affixed to the diaphragm member at the insertion opening thereof so that an electrical conductor passes through the funnel and the opening into the clamping body. A threaded clamp threadedly coupled to the clamping body moved the bottom of the clamping body upward thereby bringing the electrical conductor into electrical contact with a fixed contact member in the clamping body.

3,683,322

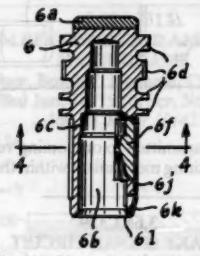
INTEGRATED WIRE TERMINATION SYSTEM

Harold W. Hults, New Berlin, Wis., assignor to Cutler-Hammer, Inc., Milwaukee, Wis.

Filed June 3, 1970, Ser. No. 42,995
Int. Cl. H01r *13/18*
U.S. Cl. 339—255 R **10 Claims**

A connector socket of the integrated wire termination system (IWTS) type adapted to receive any one of a plurality of different types of "standard" terminal (connector) pins inserted therein by a split sleeve tool. The socket includes a spring-biased pawl for engaging the annular shoulder on the

terminal pin to lock it therein. A split sleeve spring biases the pawl against the periphery of the annular shoulder for large area of electrical contact between the socket and the pin. The



socket is deep enough to receive terminal pins having different lengths of tips. A switch contact or terminal rivet structure may be provided on the front end. Insertion of a tool from the rear allows release of the terminal pin.

3,683,323

APPARATUS AND METHOD FOR FORMING A SOUND HOLOGRAM

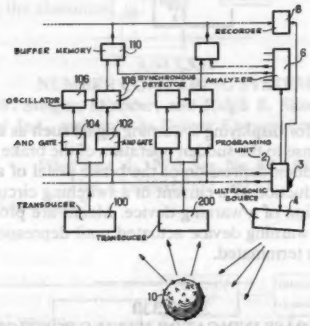
Dominique Brouard, Paris 16e, France, assignor to Compagnie Generale D'Electricite, Paris, France

Filed June 16, 1970, Ser. No. 46,671

Claims priority, application France, June 16, 1969, 6920012

Int. Cl. G01s 9/66

U.S. Cl. 340—3 R **4 Claims**



A device on board a ship for recording ultrasonic holograms of submerged objects. Ultrasonic waves back-scattered by the heterogeneities of the layer of water neat to the object studied are used as a reference signal. The irregularities of the propagation speed of the waves in the water are thus eliminated.

3,683,324

DEPTH METER HAVING IMPROVED TIME VARYING GAIN CONTROL

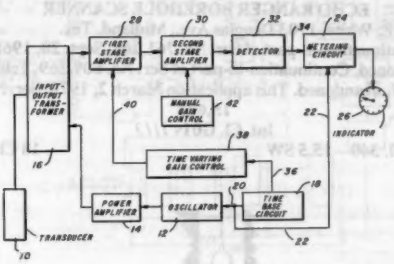
Frank E. Hoxsie, Tulsa, Okla., assignor to Lowrance Electronics Manufacturing Corporation, Tulsa, Okla.

Filed June 19, 1970, Ser. No. 47,728

Int. Cl. G01s 9/68

U.S. Cl. 340—3 R **4 Claims**

This invention relates to a meter for indicating the depth of water. More particularly, the invention provides a depth meter having a transducer means for imparting sound pulses near the surface of a body of water in response to electrical energization and in turn for providing electrical signal output in response to reflected sound pulses, a time base circuit providing evenly spaced systems initiating signals, an oscillator circuit providing sequential bursts of electrical energy to the transducer, in response to the system initiating signals, a receiving amplifier connected to the transducer amplifying the reflected signal output in response to reflected sound waves, a metering circuit connected to the time base circuit and the amplifier providing means of indicating the time response between the transmitted signal and the signal received in



response to receipt of sound waves as an indication of the distance to the bottom of the body of water reflecting the sound waves from the transducer and a time varying gain control circuit connected to the time base circuit and receiver amplifier providing a time varying bias to the amplifier following each system initiating signal, the bias being applied to the amplifier with time whereby signals resulting from the bottom at greater distances from the transducer are amplified more than signals resulting from shallower depths.

3,683,325

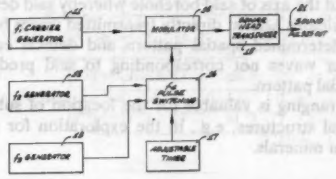
EXTENDED RANGE SONAR SYSTEM

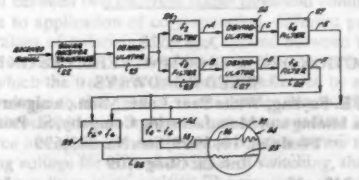
Petro Vlahos, Los Angeles, Calif., assignor to System Development Corporation, Santa Monica, Calif.

Filed Feb. 8, 1967, Ser. No. 614,603

Int. Cl. G01s 9/68

U.S. Cl. 340—3 R **16 Claims**





An extended range sonar in which a projected carrier sound frequency is modulated by second and third lower sound frequencies and a train of alternate pulses of the second and

third frequency modulated carrier frequency are projected at a fourth frequency switching rate. The echo signal is extracted from the total received signal by first abstracting the second and third frequency components of the envelope of the received signal; abstracting the fourth frequency component of the envelope of each of the second and third frequencies and combining the separate fourth frequencies components of the second and third frequencies to secure an echo signal indicating the presence of a discrete target.

3,683,326

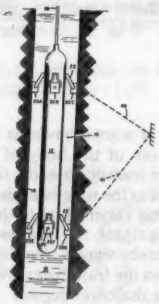
ECHO RANGER BOREHOLE SCANNER

James E. White, 1703 Douglas Ave., Midland, Tex.

Continuation-in-part of Ser. No. 761,264, Sept. 20, 1968, abandoned, Continuation-in-part of Ser. No. 609,369, Feb. 11, 1967, abandoned. This application March 2, 1970, Ser. No. 15,698

Int. Cl. G01v *1/13*

U.S. Cl. 340—15.5 SW **18 Claims**



Echo ranging detects inhomogeneities spaced a distance from a borehole by:

a. Generating within the borehole a spatial pattern of forces so as to radiate into the media surrounding the borehole a wave field having a predetermined spatial pattern,

b simultaneously sensing echoes with a detector which is substantially insensitive to forces corresponding to said predetermined spatial pattern when said generator is radiating into a medium which is completely symmetrical about the axis of said borehole whereby said detector discriminates against directly transmitted waves having said predetermined spatial pattern and detects echoes and other waves not corresponding to said predetermined spatial pattern.

Echo ranging is valuable for the location of subterranean geological structures, e.g., in the exploration for petroleum and other minerals.

3,683,327

Patent Not Issued For This Number

3,683,328

DETECTION OF OBSTRUCTING VEHICLES ON HIGH-SPEED ROADWAYS

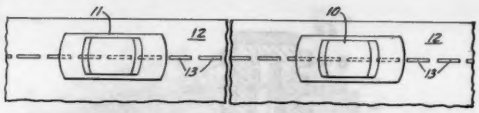
Richard E. Fayling, White Bear Lake, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul

Filed Oct. 10, 1969, Ser. No. 883,699

Int. Cl. G08g *1/09*

U.S. Cl. 340—32 **11 Claims**

Means and methods for limiting accidents between on-coming and obstructing vehicles on a roadway. Two electric signals are compared within vehicles traveling on the roadway, one signal representative of a standard speed for the vehicles and the other signal representative of the actual speed of the vehicles. When the signals differ by a predetermined amount,



an output signal is transmitted to on-coming vehicles, where it is fed to accident-limiting mechanism within the vehicles.

3,683,329

BRAKE SIGNAL CIRCUIT

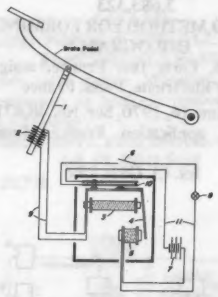
Gernot Sattler, Mauerbachstrasse 38/2/4, A-1147 Vienna, Austria

Filed Sept. 8, 1969, Ser. No. 856,012

Claims priority, application Austria, Sept. 11, 1968, A 8852/68

Int. Cl. B60q *1/44*

U.S. Cl. 340—71 **6 Claims**



Apparatus for displaying a warning signal such as a light or horn in response to the sudden operation of the brake pedal of a vehicle. Sudden depression of the brake pedal of a vehicle causes the induction of a current in a switching circuit which causes actuation of a warning device. Means are provided to maintain the warning device actuated until depression of the brake pedal is terminated.

3,683,330

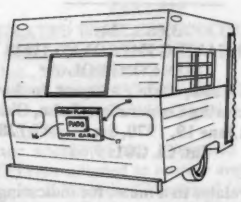
SAFE-TO-PASS INDICATOR HAVING PORTIONS OF INDICIA FLASHINGLY ILLUMINATED

Arthur W. Lancaster, Raleigh, N.C., assignor to Hi-Way Safti Signal Manufacturing Corporation, Raleigh, N.C.

Filed Dec. 14, 1970, Ser. No. 97,815

Int. Cl. B60q *1/00*

U.S. Cl. 340—107 **10 Claims**



A safety device for indicating from a lead vehicle to following drivers when it is safe to pass. The control means for the

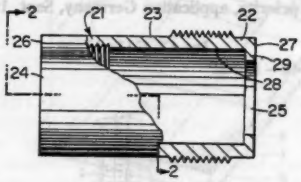
device is spring loaded to the off position for safety reasons and all of the wording on the safe-to-pass indicator are clearly visible when the sign is both off and on. A transistorized multivibrator is used to activate flashing light indicators.

3,683,331

ALUMINUM RF CONNECTOR AND METHOD FOR MAKING SAME

John S. Overholser, Box 207, Klamath, Calif.

Filed Jan. 30, 1970, Ser. No. 7,115
Int. Cl. H01r *19/42*
U.S. Cl. 339—114 **8 Claims**



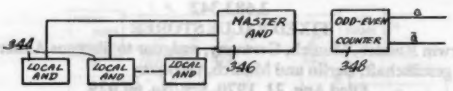
An RF component of the aluminum body, silver faced connector type for use in salty environments is of generally cylindrical configuration, and hard anodized over its entire exposed face to a predetermined depth. A generally cylindrical insert sleeve of brass is silver plated, over its entire exposed face, in a predetermined thickness and then press fitted into the hard anodized aluminum component. No electric current can be generated between the dissimilar metals, even in a slat environment, because of the isolation of the aluminum within its anodized surface. Defects in any rubber end caps and pores developing in the silver plate still prevent salt air from reaching the aluminum.

3,683,332

NUMBER COMPARING SYSTEM

Robert W. Steiger, Munster, and Ralph E. Skoog, Highland, both of Ind., assignors to Delcon Corporation, Hammond, Ind.

Filed Sept. 4, 1970, Ser. No. 69,659
Int. Cl. G06f *7/02, 15/30*
U.S. Cl. 340—146.2 **6 Claims**



A number comparing system usable in checking credit cards, inventory control, and many other areas. An input device is provided for setting a number to be verified, this number may be read electronically from a credit card or ticket, or it may be set manually be mans of knobs and dials, etc. A high speed tape unit, which may use punched paper tape or magnetic tape, acts as a memory and readout unit. A logic system compares the number to be verified with numbers read from the memory. The logic system actuates an indicator or alarm to confirm verification, or to attract attention, as to a stolen credit card.

3,683,333

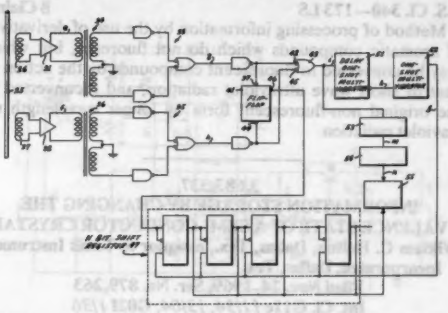
Patent Not Issued For This Number

3,683,334

DIGITAL RECORDER

Leslie W. Gay, Palos Verdes Peninsula, Calif., assignor to The National Cash Register Company, Dayton, Ohio

Filed Nov. 19, 1970, Ser. No. 91,123
Int. Cl. G06f *3/06*; G11b *23/18*
U.S. Cl. 340—172.5 **9 Claims**



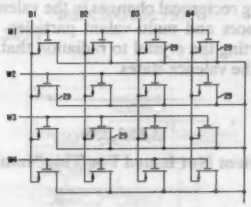
In accordance with the present invention, pulses representing binary "ones", and pulses representing binary "zeros" are recorded on a "ones" track and a "zeros" track, respectively, of a tape cassette. The reproducing unit recombines the "ones" and "zeros", storing the bits in a shift register until a complete word is stored in the shift register. The "one" and "zero" pulses are also combined to provide clock pulses synchronized with the data pulses.

3,683,335

NON-VOLATILE MEMORY ELEMENT AND ARRAY

James R. Cricchi, Baltimore, and William W. Beydler, Laurel, both of Md., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed June 24, 1970, Ser. No. 49,398
Int. Cl. G11c *11/40, 5/06*
U.S. Cl. 340—173 R **8 Claims**



A metal insulated semiconductor (MIS) field effect transistor is operated in a gate-to-source mode. The voltage threshold of conduction of the transistor is variable and is switched between two different stable threshold conditions in response to application of corresponding, different predetermined values of polarizing voltages applied between the gate and source terminals. Determination of the threshold condition to which the transistor is switched is effected by applying a read voltage to the gate of the transistor intermediate the voltage threshold levels and sensing the current flow between the source and drain. Since the sense voltage is less than the polarizing voltage for either condition of switching, the preset threshold condition is maintained. The transistor therefore exhibits a non-volatile memory capability. A plurality of the transistors are employed in a memory array and may be readily fabricated in integrated circuit form.

3,683,336

FORMATION OF VISIBLE AND/OR FLUORESCENT IMAGES

Thomas Harland Brownlee, Westport, and Ken Matsuda, Stamford, both of Conn., assignors to American Cyanamid Company, Stamford, Conn.

Continuation-in-part of Ser. No. 764,313, Oct. 1, 1968, abandoned. This application Aug. 8, 1969, Ser. No. 848,686

Int. Cl. G11c *13/04, 11/42*

U.S. Cl. 340—173 LS 8 Claims

Method of processing information by the use of derivatives of aromatic compounds which do not fluoresce, but which may be converted to fluorescent compounds by the action of heat or short wave ultraviolet radiation, and reconverted to the original non-fluorescent form by longer wavelength ultraviolet radiation.

3,683,337

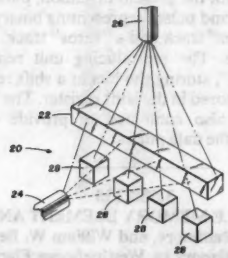
INFORMATION STORAGE BY CHANGING THE VALENCE STATE OF A SEMI-CONDUCTOR CRYSTAL

William C. Holton, Dallas, Tex., assignor to Texas Instrument Incorporated, Dallas, Tex.

Filed Nov. 24, 1969, Ser. No. 879,263

Int. Cl. G11c *11/34, 13/04;* G02f *1/36*

U.S. Cl. 340—173 CC 9 Claims



An information storage system includes a semi-conductor crystal having deep level donors and multi-valent particles dispersed through it. Information is written into the system by subjecting the crystal to electro-magnetic radiation and thereby causing reciprocal changes in the valence states of the respective donors and multi-valent particles. Information is read by subjecting the crystal to radiation that is absorbed by ions in one of the valence states.

3,683,338

Patent Not Issued For This Number

3,683,339

NON-DESTRUCTIVE READ-OUT MEMORY WIRE

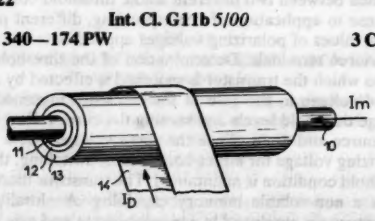
Tran Van Kai, Paris, France, assignor to Thomson-CSF

Filed April 20, 1970, Ser. No. 29,928

Claims priority, application France, April 25, 1969, 69/13222

Int. Cl. G11b *5/00*

U.S. Cl. 340—174 PW 3 Claims



A magnetic wire memory element of the non destructive road out kind comprises a core of a non-magnetic conductive material over which are deposited in succession a layer of a soft anisotropic material, a layer of a non magnetic material and a layer of a hard anisotropic magnetic material; the easy magnetic axis of the anisotropic layers extend along the axis of the core. The core is used as a word-wire. The digit and read out wires are wound around the element.

3,683,340

MAGNETIC INFORMATION STORAGE DEVICE

Gerhard Dorsch, Weissenbrunn Nr. 79, Post Altdorf, and Wolfgang Wagnerberger, Herbartstr. 10, Nurnberg, both of Germany

Filed Sept. 2, 1970, Ser. No. 69,040

Claims priority, application Germany, Sept. 16, 1969, P 19 46 760.8

Int. Cl. G11c *17/00*

U.S. Cl. 340—174 SP 3 Claims

A magnetic information storage device has at least two unitary members of magnetizable, punchable magnetic material. The members have respective polarities of opposite sign and are joined so as to form a composite member having juxtaposed regions of respective, opposite polarities. A structure made of nonmagnetizable, punchable material is provided for carrying the composite member. The composite member has a scan pattern defined by a plurality of regions across the surface thereof. A selected number of these regions has punched-through openings, whereby the disposition of the regions with the openings relative to the other regions determine the information stored in the device.

3,683,341

Patent Not Issued For This Number

3,683,342

FIXED VALUE STORER

Erwin Koesler, Munich, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany

Filed Aug. 21, 1970, Ser. No. 66,029

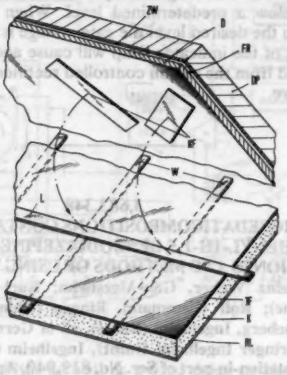
Claims priority, application Germany, Aug. 26, 1969, P 19 43 394.4

Int. Cl. G11c *17/00*

U.S. Cl. 340—174 SP 9 Claims

A fixed value storer, utilizing a plurality of word lines and a plurality of read lines which intersect the word lines, and in which a magnetic coupling is produced at the intersections of word and read lines for the storage of information, whereby the magnetic field produced by a current through a word line is distorted by the presence of a coupling member of magnetic material cooperable with such lines to produce read signals in the respective read lines, in which a multi-layer circuit board has a magnetic layer and an insulating foil disposed on each magnetic layer and having word and read lines disposed thereon insulated from one another, a data carrier disposed on the exposed face of each foil, each data carrier having magnetic coupling members disposed thereon, arranged in accordance with the information to be stored, at the respective intersections of word and read lines at the face of such carrier adjacent the cooperable foil, a pressure plate for each data

carrier disposed at the outer face thereof for applying pressure to the latter and the cooperable foil, and an intermediate layer of a resilient material disposed between each pressure plate



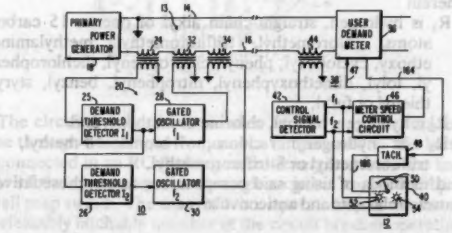
and cooperable data carrier for uniformly distributing the pressure so applied, common means being employed where pressure plates are disposed at each side of the circuit board for exerting pressure on both plates.

3,683,343

DEMAND METERING SYSTEM FOR ELECTRIC ENERGY

Stephen Feldman, and Williard Graves, both of Baltimore, Md., assignors to Evirometrics, Inc. and Richard Rubin, Arlington, Va., part interest to each

Filed July 27, 1970, Ser. No. 58,597
Int. Cl. H04m *11/04*
U.S. Cl. 340—178 25 Claims



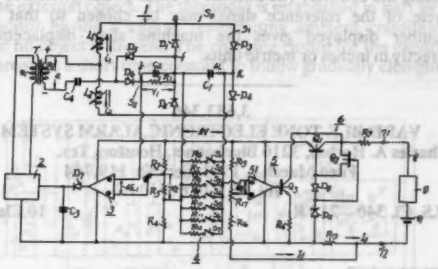
Disclosed is a variable rate electric metering system including electric meters selectively operable at three or more speeds, and a meter remote control system having a control signal generator at the power station to transmit a multi-tone control code reflective of overall system demand over the powerlines and receiving means associated with each meter responsive to the tones to adjust the meter speed. A consumer cost display unit is provided to give an indication of both overall system demand and actual customer power consumption in terms of dollars per hour spent. Wired-in and portable cost display units are disclosed.

3,683,344

DISPLACEMENT-ELECTRIC SIGNAL CONVERTER

Bunjiro Saito, Tokyo, Japan, assignor to Kabushikikaisha Yokogawa Denk Seisakusho(Yokogawa Electric Works, Ltd.), Tokyo, Japan

Filed July 14, 1970, Ser. No. 54,726
Claims priority, application Japan, June 23, 1970, 45/54644
Int. Cl. G08c *19/08*
U.S. Cl. 340—199 10 Claims



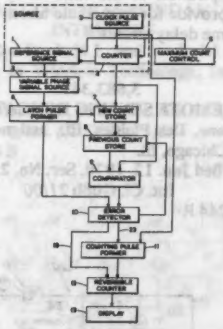
A displacement-electric signal converter having a pair of displacement detecting elements the impedances of which vary in accordance with a displacement, a rectifier including a bridge circuit, first and second capacitors, an oscillator for supplying AC current to the displacement detecting elements, a circuit for controlling voltage for the oscillator, and amplifier for amplifying current flowing through the second capacitor. In this case, the output signal is supplied to a load through a transmission line of a DC electric power source for the amplifier.

3,683,345

PHASE-RESPONSIVE CIRCUITS

Kenneth Milford Faulkes, and Alan Michael Hayes, both of Bradford, England, assignors to The English Electrical Company Limited, London, England

Filed Dec. 23, 1969, Ser. No. 887,584
Claims priority, application Great Britain, Jan. 3, 1969, 462/69
Int. Cl. G08c *19/16*
U.S. Cl. 340—207 P 8 Claims



This invention relates to a circuit which provides an indication, on a display, of phase changes in signals from a variable phase signal source. The phase of these signals may vary in dependence upon displacement of, for example, a machine slide. The number of clock pulses generated by a clock pulse source between the occurrence of the leading edge of a reference

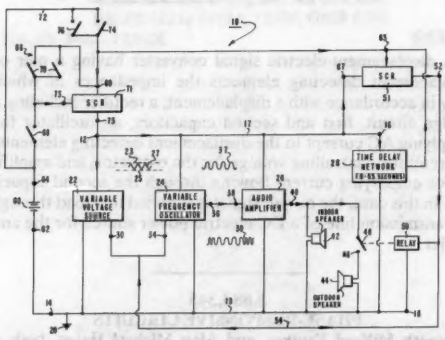
signal and the occurrence of the next leading edge of the variable phase signal gives a measure of the phase relationship between the two signals. Changes in phase between successive cycles of the variable phase signal are detected by a comparator and a detector which cause a number of counting pulses, equal to the difference between the clock pulse counts of the two successive cycles, to be fed to a reversible counter, together with a "Count Up" or a "Count Down" instruction. The number in the counter and in the display gives a measure of the resultant phase shift relative to the phase at the time of setting the counter. The number of clock pulses generated per cycle of the reference signal may be chosen so that the number displayed gives the machine slide displacement directly in inches or metric units.

3,683,346

VARIABLE-TONE ELECTRONIC ALARM SYSTEM

Charles A. Horton, 3210 Bluebonnet, Houston, Tex.

Filed March 1, 1971, Ser. No. 119,764
Int. Cl. G08b *3/10*
U.S. Cl. 340—213 R **10 Claims**



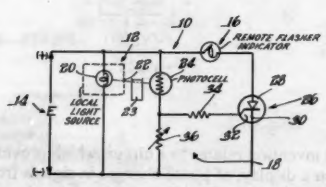
An intrusion alarm having an audio oscillator capable of producing fixed or variable frequency tones wherein closing of an intrusion detection switch causes the oscillator to first deliver a fixed warning tone to a local loudspeaker, and after a time delay causes the oscillator to deliver a variable frequency alarm tone to the local and a remote loudspeaker in the event authorized deactivation of the alarm system does not take place before expiration of the time delay period. Fire and panic switches provide for immediate alarm tone signalling by bypassing the time delay circuit.

3,683,347

REMOTE SENSING INDICATOR

Robert R. Melone, Des Plaines, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill.

Filed Jan. 12, 1970, Ser. No. 2,031
Int. Cl. G08b *21/00*
U.S. Cl. 340—244 R **10 Claims**



A remote sensing device which electrically indicates when a liquid within a container is at or below a predetermined level. The remote sensing device includes a flasher type indicator lamp connected in series with a silicon controlled rectifier. The silicon controlled rectifier is rendered conductive by a suitable gate voltage and the flasher indicating lamp is thus energized. The gate voltage is maintained on the silicon controlled rectifier as long as a liquid level sensor senses a liquid level below a predetermined level. When the liquid again raises to the desired level the gate voltage is removed and the flashing of the indicator lamp will cause anode voltage to be removed from the silicon controlled rectifier and render it inoperative.

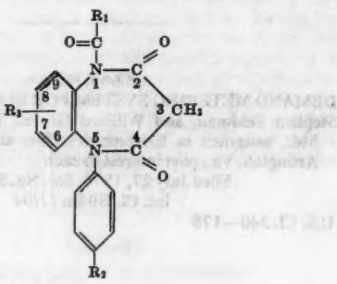
3,683,348

PSYCHOSEDATICOMPOSITIONS CONTAINING 1-ACYL-5-PHENYL-1H-1,5-BENZODIAZEPINE-2,4-(3H, 5H)-DIONES AND METHODS OF USING THE SAME

Karl-Heinz Weber, Gau-Algesheim; Karl Zeile, Ingelheim (Rhine); Rolf Giesemann, Bingen (Rhine), and Peter B. Danneberg, Ingelheim (Rhine), all of Germany, assignors to Boehringer Ingelheim GmbH, Ingelheim (Rhine), Germany

Continuation-in-part of Ser. No. 819,940, April 28, 1969, Pat. No. 3,624,076. This application March 25, 1971, Ser. No. 128,173
Claims priority, application Austria, April 29, 1968, A 4165/68
Int. Cl. A61k *27/00*
U.S. Cl. 424—244 **10 Claims**

Pharmaceutical compositions containing as an active ingredient a compound of the formula



wherein

R_1 is hydrogen, straight-chain alkyl of one to 15 carbon atoms, chloromethyl, trifluoromethyl, methylamino, ethoxy, cyclohexyl, phenyl, chlorophenyl, dichlorophenyl, tolyl, dimethoxyphenyl, nitrophenyl, benzyl, styryl, thienyl or furyl,

R_2 is hydrogen, methyl, chlorine or methoxy, and

R_3 is hydrogen, 7-chloro, 7-bromo, 8-methyl, 7-trifluoromethyl or 8-trifluoromethyl,

and methods of using said compositions as psychosedatives, muscle-relaxants and anticonvulsives.

3,683,349

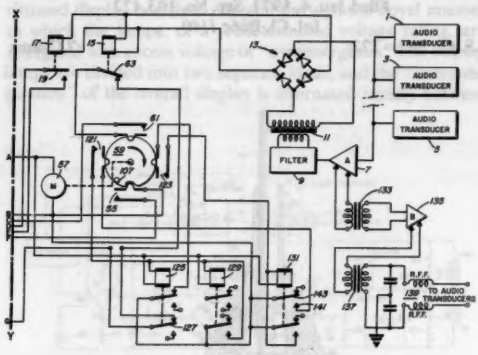
SOUND DISCRIMINATOR ALARM SYSTEM

Horace D. Eakin, P.O. Box No. 3244, Jackson, Miss.

Continuation-in-part of Ser. No. 757,228, Sept. 4, 1968, abandoned. This application June 30, 1969, Ser. No. 837,827
Int. Cl. G08b *13/18*
U.S. Cl. 340—258 D **18 Claims**

The disclosure relates to a security system for detecting intruders wherein sound frequencies introduced by the intruder or the like can be detected apart from normal environmental

noise to provide an alarm. The system discriminates between normal noise or environmental noise and intruder-produced



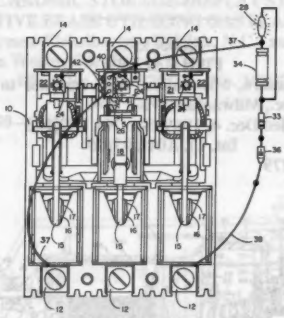
noise by use of a filter as well as a time delay to eliminate response of the system due to transients and the like.

3,683,350

ELECTRICAL CIRCUIT BREAKER WITH ILLUMINATED TRIP INDICATOR

Wayne A. Shedenheim, Villa Park, Ill., assignor to Square D Company, Park Ridge, Ill.

Filed Nov. 6, 1969, Ser. No. 874,517
Int. Cl. H01h ; G08b *21/00*
U.S. Cl. 340—253 A **3 Claims**



The circuit breaker has a window in a cover of its molded case through which light from a neon lamp is visible. The lamp is connected in an RC flashing circuit energized from the line side of the circuit breaker through a circuit controlled by a small snap switch. The snap switch is operated upon release of a releasably latchable member of the circuit breaker operating mechanism to cause flashing of the lamp whenever the circuit breaker is in its tripped condition.

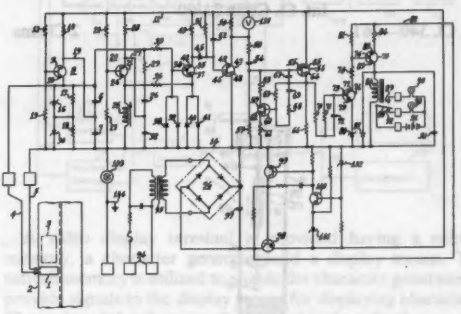
3,683,351

PRESENCE DETECTOR

Merton F. Wilcox, 3135 N. Washington Blvd., Sarasota, Fla.

Filed Jan. 7, 1970, Ser. No. 1,231
Int. Cl. G08b *13/00*
U.S. Cl. 340—258 C **5 Claims**

An electronic system for detecting the presence of an external object in the field of one of the reactors in the tank circuit of the first one of a pair of oscillators. The oscillators are interconnected for frequency synchronization. The tank circuits of the oscillators are tuned to have different natural resonant frequencies in the absence of an object whereby the oscillator signals differ in phase. The presence of an object affects the tuned resonant frequency of the tank circuit of the first oscillator in a direction or sense to decrease the phase difference between the oscillator output signals. The oscillator output signals are limited, fed to a phase detector, and a signal is developed representing the phase differential. When this signal decreases below a predetermined threshold, an output indicator is triggered to provide an indication of the presence of the external object. The threshold is established in part by a capacitor having a charge representing ambient conditions when no object is present. The charging circuit for the capacitor provides a short time constant to follow gradually changing



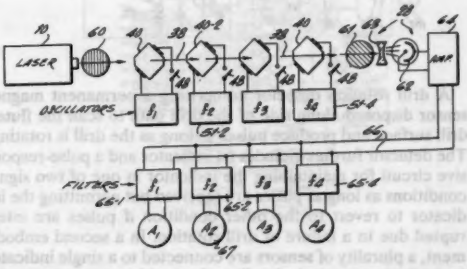
ambient conditions but provides a long time constant to prevent change in the charge on the capacitor as the result of the relatively more rapid and large change in the impedance of the reactance element as an external object arrives within the detection field. The long time constant circuit is operative regeneratively to change the charge on the capacitor after a long delay following the detection of an arriving object in case the object has not in the interim departed from the field. The departure of the object from the field prior to the time that the charge has leaked from the memory capacitor, returns the capacitor charge to ambient condition. The system is particularly adapted to indicate presence of vehicles within the field of a loop disposed slightly below the surface of a roadway or driveway.

3,683,352

ALARM SYSTEM FOR SENSING SMOKE AND INTRUDERS

Henry W. West, Red Bank, N.J., and Frederick Gans, Jamaica, N.Y., assignors to Winslow Technology, Inc., Gatontown, N.J.

Filed March 23, 1971, Ser. No. 127,276
Int. Cl. G08b *13/18*
U.S. Cl. 340—258 B **10 Claims**



An alarm system using a laser generated light beam which extends through a plurality of isolated detectors and ends at a

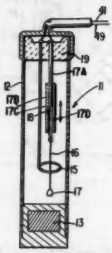
control station. Each detector includes two light-to-electric transducers, one for detecting smoke by scattering and the other to detect an intruder by the temporary blocking of the beam. There is no electrical wiring connecting the detector stations. A signal denoting smoke or an intruder is sent over the laser beam in the form of an amplitude or polarization modulation at a characteristic frequency. This signal is received at the control station, its frequency of modulation is determined and an alarm is activated.

3,683,353

SWIMMING POOL ALARM

Martin E. Miller, Redding, Conn., assignor to Gold Line Connector, Inc., Norwalk, Conn.

Filed March 20, 1970, Ser. No. 21,266
Int. Cl. G08b *21/00*
U.S. Cl. 340—261 **2 Claims**



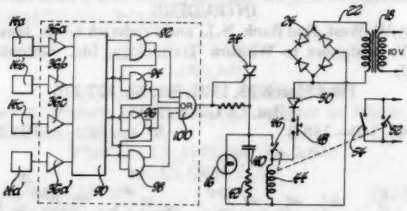
A simplified and highly sensitive swimming pool alarm having a solid-state circuit which responds to a water disturbance sensing unit in the pool and has means to adjust the sensor. The circuit, when energized, initiates an audible alarm which sounds continuously until a power switch is opened.

3,683,354

DRILL, TAP, AND OTHER OBJECT DETECTOR

George W. Enk, 204 Omar St., Struthers, Ohio

Filed July 27, 1970, Ser. No. 58,413
Int. Cl. G08b *21/00*
U.S. Cl. 340—271 **13 Claims**



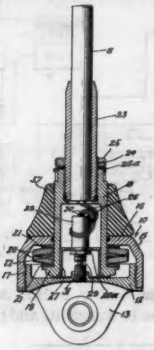
A drill rotation detector comprising a permanent magnet sensor disposed along side of the drill path to scan the fluted drill surface and produce pulses as long as the drill is rotating. The detector further includes an indicator and a pulse-responsive circuit for maintaining the indicator in one of two signal conditions as long as pulses are received but permitting the indicator to revert to the other condition if pulses are interrupted due to a failure of drill rotation. In a second embodiment, a plurality of sensors are connected to a single indicator by an interconnected plurality of coincidence gates to maintain the indicator in a first condition only as long as all monitored drills are operating properly.

3,683,355

CABLE LOAD INDICATOR

Leslie C. Collins, Doylestown, Pa., assignor to Eastern Rotorcraft Corporation, Bucks County, Pa.

Filed Jan. 4, 1971, Ser. No. 103,472
Int. Cl. B66c *1/40*
U.S. Cl. 340—272 **7 Claims**



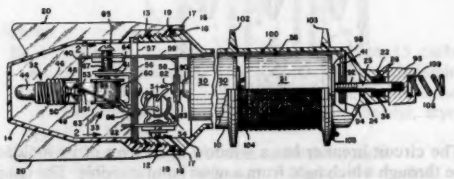
A cable with a terminal construction to transfer a load. Load transfer parts are structurally related with resilient load carrying elements interposed to give a controlled relative movement between the transfer parts. An electrical switch is supported in the terminal and the movement is used to actuate the switch which is included in an electrical circuit to give an indication such as a light when a selected load is applied to the terminal. An adjustable screw mounted in one of the load transfer parts provides the capability of varying the actuation of the switch to obtain the particular load selection desired.

3,683,356

FISH CALLER

Michael J. D'Amore, Milwaukee, Wis., assignor to D'Amore Industries, Inc., Milwaukee, Wis.

Filed Dec. 4, 1969, Ser. No. 882,163
Int. Cl. A01k *93/00*
U.S. Cl. 340—279 **4 Claims**



A fish caller adapted to be disposed in water and including a source of electric energy, an illuminator, a buzzer and a mercury switch for intermittently placing the buzzer and illuminator in circuit with the energy source.

3,683,357

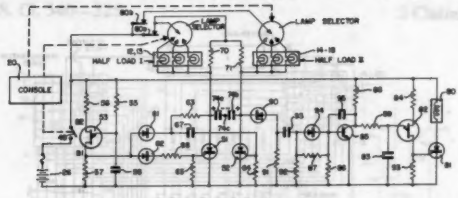
BATTERY OPERATED SCOREBOARD

Michael C. Presnick, New York, N.Y.; Everett Penn, Los Angeles, Calif., and John Piorek, Westbury, N.Y., assignors to Olympian Scoreboard Division, Metatronics Manufacturing Corporation, Hicksville, N.Y.

Filed Feb. 19, 1970, Ser. No. 12,651
Int. Cl. G08b *5/22*
U.S. Cl. 340—323 **7 Claims**

The present invention relates to the battery operation of display devices and the like, including scoreboards for sports

events. More particularly, the invention is directed to a unique circuit for efficiently operating a bank of display lamps in a display board with extra light output and for operating the lamps for comparatively lengthy durations without recharging of the batteries. The new and improved operation of remotely situated display boards is effected through the novel manner in which the lamps, of a predetermined voltage rating, are energized with excess voltage or "overenergized." The display lamps are divided into two separate loads, and the "overenergization" of the overall display is alternated rapidly between



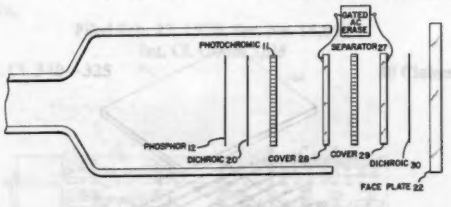
the two loads of the divided display at a frequency (i.e., 50–70 Hz) carefully selected to provide adequate and regular cooling of the "overenergized, extra intensely burning" lamps while providing the appearance to the eye of being constantly energized. The desired display of information is obtained by a novel "scintillating" energization of the lamps of the board, which energization is effected through a new circuit which includes an oscillator circuit, a switching circuit, and a guard circuit for automatically terminating operation of the board when the DC battery source has reduced itself to a predetermined level or when the oscillator is not properly functioning.

3,683,358

PHOTOCHROMIC STORAGE-DISPLAY SYSTEM WITH SELECTIVE ERASE UTILIZING GAS PLASMA PANEL

William Ernest Eichelberger, Raleigh, N.C., assignor to Corning Glass Works, Corning, N.Y.

Filed Dec. 22, 1970, Ser. No. 100,655
Int. Cl. G06f 3/14
U.S. Cl. 340—324 A **11 Claims**



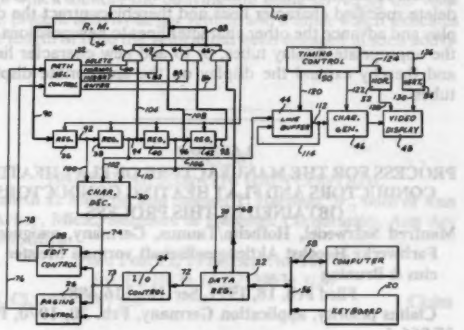
Selective erasing capability is provided in a display system having a photochromic member upon which information is written by an electron beam which addresses a selected portion of a phosphor layer. Light from the addressed portion of the phosphor changes the optical density of the photochromic glass. The information is selectively erased from the photochromic member by light from a gas plasma panel having gas-filled cells. These cells emit predominantly infrared light which bleaches the photochromic glass to erase the information. The gas plasma panel is maintained at a threshold of excitation by an applied AC voltage. Specific cells are addressed by light from the phosphor layer. The electron beam selects a portion of the phosphor layer and light from this portion selectively excites the desired cell, or cells.

3,683,359

VIDEO DISPLAY TERMINAL WITH AUTOMATIC PAGING

Andrew J. Kleinschnitz, Willow Grove, Pa., assignor to Delta Data Systems Corporation, Cornwells Heights, Pa.

Filed April 30, 1971, Ser. No. 139,064
Int. Cl. G06f 3/14
U.S. Cl. 340—324 A **10 Claims**



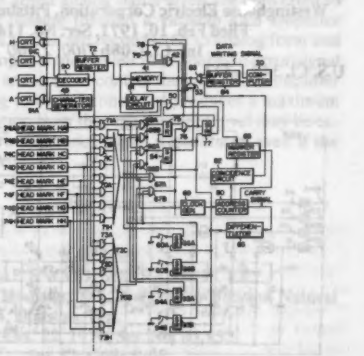
A video display terminal is provided having a refresh memory, a character generator and a display means. The refresh memory is utilized to enable the character generator to provide signals to the display means for displaying characters. The codes of the characters are stored in the refresh memory. The refresh memory has a capacity to have stored therein a plurality of contiguous lines of characters larger than the number of lines which can be simultaneously displayed on the display. Means responsive to the refresh memory are provided for enabling the display of a selected plurality of contiguous lines of characters from the refresh memory in the display means which includes selection means for changing the selected lines from the refresh memory which are displayed in the display means.

3,683,360

CONTROL DEVICES FOR DISPLAY APPARATUS

Shigenori Matsushita, Yokohama; Fumitaka Sato, Kawasaki; Hisao Chujo, and Minori Horiike, both of Yokohama, all of Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan

Continuation-in-part of Ser. No. 724,558, April 26, 1968, abandoned. This application July 1, 1971, Ser. No. 158,846
Int. Cl. G06f 3/14
U.S. Cl. 340—324 A **1 Claim**



Character data for a plurality of scanned cathode ray tube displays are stored in a recirculating magnetostrictive delay

line memory by character lines identified for their particular display tubes. Decoder means continuously gates character data to the appropriate display tubes. The recirculating memory has three feedback circuits — one for the normal memory function, the second having a recirculating delay sufficient for scanning a line of characters, and the third for advancing each character line to the position in the memory previously occupied by a preceding displayed character line. The three feedback circuits are controlled by gating means to give static character line readout for all the display tubes, to delete specified character lines and thereby contract the display and advance the other character lines to new positions on the appropriate display tubes, or to add new character lines and thereby expand the display on the appropriate display tubes.

3,683,361

PROCESS FOR THE MANUFACTURE OF FLAT HEATING CONDUCTORS AND FLAT HEATING CONDUCTORS OBTAINED BY THIS PROCESS

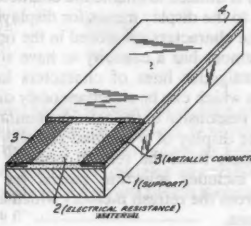
Manfred Salzwedel, Hofheim/Taunus, Germany, assignor to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning

Filed Feb. 18, 1971, Ser. No. 116,488

Claims priority, application Germany, Feb. 20, 1970, P 20 07 866.4

Int. Cl. H01c 1/14

U.S. Cl. 338—322 **10 Claims**



In the manufacture of a flat heating conductor, i.e., an electrical resistance heating element, at least two metallic conductors are embedded in a layer of a film-forming plastics dispersion which has been filled with carbon black, whereupon the plastics dispersion is dried.

3,683,362

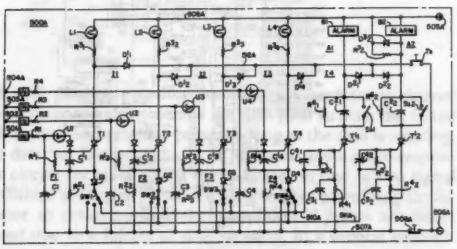
PROTECTIVE RELAY USING AN INDICATOR AND ALARM CIRCUIT

Paul J. Schwanenflugel, Glen Ridge, N.J., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Feb. 10, 1971, Ser. No. 114,208

Int. Cl. G08b 7/00, 21/00

U.S. Cl. 340—322 **18 Claims**



A protective relaying apparatus including an indicator and an alarm network to indicate, until reset, an indication whenever faulty operation has occurred and to provide an alarm which responds to each occurrence of any faulty operation and wherein the operation of the indicator is independent of the alarm.

3,683,363

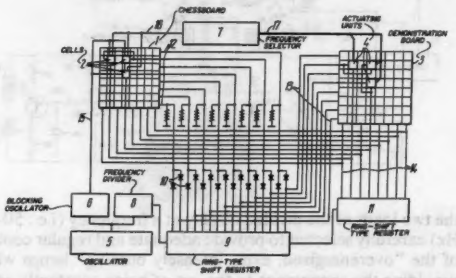
DEVICE FOR DEMONSTRATION OF CHESS PLAY

Gleb Sergeevich Khlebutin, ulitsa Bolshevistskaya, 200, kv. 30, Perm, U.S.S.R.

Filed Dec. 3, 1970, Ser. No. 94,743

Int. Cl. A63f 3/02; G08b 5/22

U.S. Cl. 340—323 **3 Claims**



A device for demonstration of chess play characterized in that each chessman carries an oscillatory circuit tuned to the frequency assigned to the name of the given chessman, and an inductance coil is provided under each square of the chessboard and connected to the output of a pulse oscillator furnishing exciting pulses to all inductance coils in succession, and to the input of a frequency selector which controls the actuating units of the demonstration board.

3,683,364

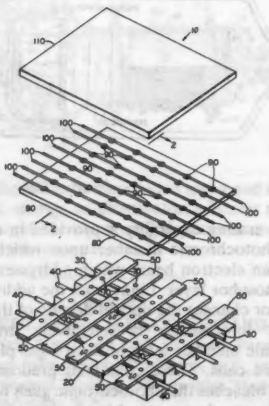
DISPLAY PANEL WHEREIN EACH SCANNING CELL IS ASSOCIATED WITH A PLURALITY OF DISPLAY CELLS

George E. Holz, North Plainfield, N.J., and James A. Ogle, Paoli, Pa., assignors to Burroughs Corporation

Filed Jan. 18, 1971, Ser. No. 107,131

Int. Cl. H01j 17/16

U.S. Cl. 340—324 R **10 Claims**



A display panel includes a layer of scanning cells, each including a scanning anode and a scanning cathode, and a layer of display cells arrayed adjacent to the layer of scanning cells

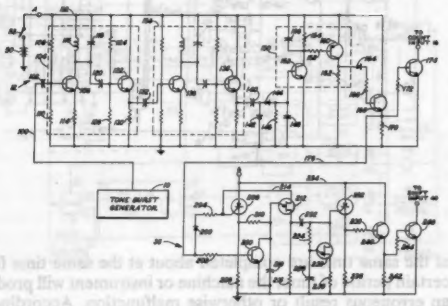
so that the scanning cells communicate with and are sources of excited particles for the display cells. According to the invention, the cells and electrodes are arrayed so that each scanning cell communicates with and provides excited particles for more than one display cell.

3,683,365

ALPHANUMERIC MESSAGE READOUT CIRCUIT

Stephen J. Martin, Miami, Fla., assignor to Robertshaw Controls Company, Richmond, Va.

Filed April 6, 1970, Ser. No. 25,697
Int. Cl. G09f *11/10*
U.S. Cl. 340—325 **3 Claims**



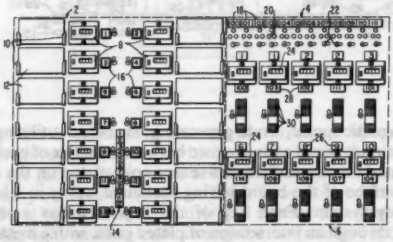
A code conversion and display circuit for providing a perceptible readout of a coded alphanumeric message formed by a series of tone burst signals. The circuit includes a tone burst converter adapted to transform the alphanumeric message into a pulse coded signal which is applied through a sequentially stepped steering network to a plurality of readout devices such that each readout device displays a single alphanumeric character of the message in response to a respective one of the tone burst signals.

3,683,366

DISPLAY BOARD FOR MONITORING A FLEET OF VEHICLES

Raymond C. Turpin, Jr., 3825 Wieuca Terrace, N.E., Atlanta, Ga.

Filed Feb. 27, 1970, Ser. No. 15,091
Int. Cl. G06m *3/08*
U.S. Cl. 340—325 **20 Claims**



A display board for monitoring the activities of a fleet of vehicles engaged in transporting materials between a central site and a plurality of outlying sites includes an order status section, a vehicle status section and a haul status section.

The order status section is segregated into areas which correspond to each outlying site with digital counters displaying the cumulative quantity of materials dispatched to each outlying site. Adjacent to each counter there is a device for holding a card indicating the particulars of the particular outlying site.

The vehicle status section is segregated into areas corresponding to the individual vehicles in the fleet. Visually changeable indicators show whether the associated vehicle is inoperable, in use or operable but not in use.

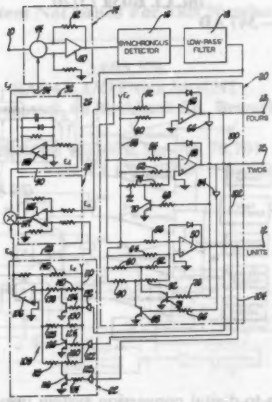
The haul status section is segregated into areas which correspond to active vehicles or other working units. In the case of vehicles, each of these areas has visually changeable indicators which identify the outlying site being served by the vehicle, present activity of the vehicle and a timer which indicates the length of time the vehicle has been engaged in such activity.

3,683,367

DIGITAL AUTOMATIC GAIN CONTROL

Kenneth E. Monroe, and Samuel T. Harmon, Jr., both of Ann Arbor, Mich., assignors to Datamax Corporation, Ann Arbor, Mich.

Filed Feb. 12, 1970, Ser. No. 10,771
Int. Cl. H03k *13/02*; H03g *3/20*
U.S. Cl. 340—347 AD **1 Claim**



An analog to digital signal converting amplifier with automatic gain control. Input analog signal levels are converted to digital form after passing through a variable gain amplifier device. The digital signals are reconverted to analog form and compared to the input analog levels to produce an error signal which is averaged and used to control the gain of the amplifier device. The analog to digital converted produces a maximum output data indication even through the input level may be excessive. A non-zero difference signal is generated even if the digital output is zero.

3,683,368

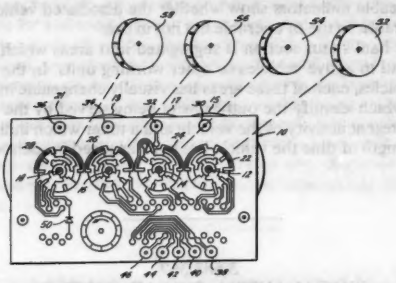
DIGITAL ENCODING TRANSDUCER

Theran L. Ebner, Houston, Tex., assignor to Houston Natural Gas Corporation, Houston, Tex.

Filed Oct. 22, 1970, Ser. No. 83,132
Int. Cl. G08c *9/08*
U.S. Cl. 340—347 P **8 Claims**

A digital encoding transducer for measuring the angular position of a plurality of rotatable shafts which form a part of a

gear type register or counter. A digital encoding transducer which provides accurate encoding and which includes error



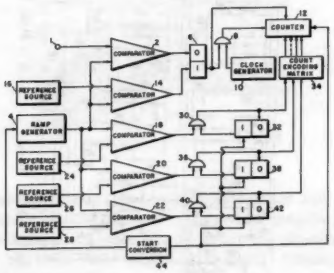
detecting and correcting means which detects and corrects positional errors in the coded transducer.

3,683,369

ANALOG TO DIGITAL CONVERTER

David M. Stern, Merion Station, Pa., assignor to Honeywell Inc., Minneapolis, Minn.

Filed June 25, 1971, Ser. No. 156,715
Int. Cl. H03k *13/20*
U.S. Cl. 340—347 AD **5 Claims**



An analog-to-digital conversion system uses a comparator to detect an equality between an analog input signal and a ramp reference signal to determine the counting interval of a counter counting constant frequency signals. A plurality of auxiliary comparators are used to compare the input signal with respective ones of a plurality of constant reference signals. The auxiliary comparators are each arranged to preset a corresponding count into the counter upon a detected equality between the input signal and a respective one of the constant reference signals whereby the counter is set to a count representing a desired slope of the ramp reference signal.

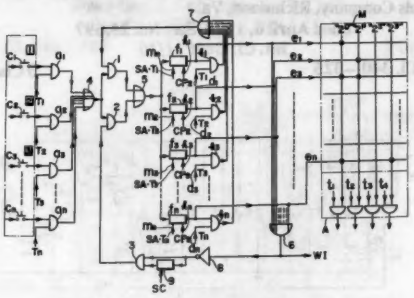
3,683,370

INPUT DEVICE

Akira Nagano; Nobukata Ninomiya, and Masatsugu Miura, all of Kyoto, Japan, assignors to Omran Tateisi Electronics Co., Kyoto, Japan

Filed March 25, 1971, Ser. No. 127,940
Claims priority, application Japan, March 26, 1970, 25801/70
Int. Cl. G08c *1/00*
U.S. Cl. 340—365 **4 Claims**

An improved input device for use in an electronic calculating machine or any other keyboard signal sender having a plurality of character keys on the keyboard, which permits such machine or instrument to function its own operation without fault or error even when a plurality of keys are operated about at the same time successively in rapid sequence, that is, rolled over. It has been well known that, when contact circuits associated with relevant character keys that has been operated



at the same time are completed about at the same time for a certain period of time, the machine or instrument will produce an erroneous result or otherwise malfunction. According to the present invention, to avoid this disadvantage, this input device is interposed between the keyboard and the binary encoding device heretofore generally used.

3,683,371

MAGNETIC KEYBOARD TERMINAL

George E. Holz, North Plainfield, N.J., assignor to Burroughs Corporation, Detroit, Mich.

Filed Sept. 15, 1970, Ser. No. 72,319
Int. Cl. G08c *9/04*
U.S. Cl. 340—365 **9 Claims**

A magnetic pulse, code-generating keyboard utilizing a printed circuit board as an air core between a matrix of exciter coils plated on one surface and sensor coils plated on the opposite surface of the board having particular utility in a high frequency system. Each key of the keyboard has a shaft running through an intersection of plated coils, with a metallic plate mounted on the shaft for preventing the induction of a current from an addressed exciter coil to the sensor coil associated therewith when the key is not depressed. When the key is depressed the plate is moved away from the exciter coil thereby producing an output signal from that particular location within the matrix. The matrix locations are sequentially addressed and when a depressed key is sensed the output is fed to an associated memory or instrument decoder.

3,683,372

MULTIMODE SELF-CHECKING FLAME DETECTOR

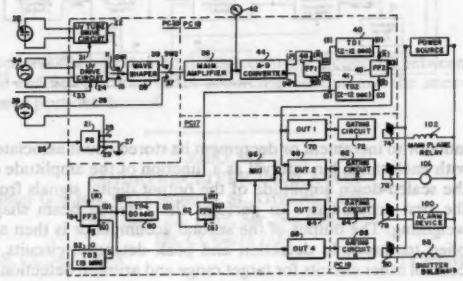
Robert Horn, 611 Aspenwood Dr., Richardson, Tex.

Continuation-in-part of Ser. No. 849,401, Aug. 12, 1969, abandoned. This application May 27, 1971, Ser. No. 147,565

Int. Cl. G08b 29/00

U.S. Cl. 340—410 10 Claims

An alarm signal is operated by a multimode self-checking circuit upon failure of such circuit, or failure of a flame being monitored by a device that is sensitive to such flame. This circuit is provided with a plurality of different drive circuits each of which is designated for a flame sensitive device, such that the flame can be monitored.



3,683,373

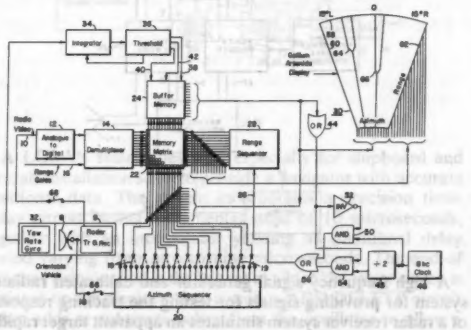
SOLID STATE DISPLAY OF RANGE AND AZIMUTH INFORMATION

James A. Barnes, and John E. Bjornholt, both of Scottsdale, Ariz., assignors to Motorola, Inc., Franklin Park, Ill.

Filed Jan. 21, 1970, Ser. No. 4,618

Int. Cl. G01s 9/02, 7/04

U.S. Cl. 343—5 DP 11 Claims



A field is scanned in azimuth at a low rate by range and azimuth radar equipment which may be mounted on a vehicle and the gathered range and azimuth information is stored in a memory matrix at a slow rate. The information is destructively read out of the memory matrix and applied to a display comprising light emitting cells arranged in a truncated sector of a circle at a much higher rate, the information being fed back into the matrix memory to restore the information thereto. When the vehicle turns, the stored information is shifted in the memory matrix to make the displaced or shifted information indicate the true direction with respect to the new orientation of the vehicle. The readout period of time allotted to the range at which there is no target may be reduced if desired to increase display brightness.

3,683,374

RADAR ANTENNA ARRANGEMENT

Peter Honold, Munich, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany

Filed Aug. 10, 1970, Ser. No. 62,387

Claims priority, application Germany, Aug. 13, 1969, P 19 41 268.1

Int. Cl. G01s 9/56

U.S. Cl. 343—6.5 R 10 Claims

A radar antenna utilizing primarily antenna having a pencil-shaped radiation characteristic and two secondary radar antennas which supplement the primary antenna and are disposed adjacent the periphery of the primary antenna, the secondary antenna each having a fan-shaped radiation characteristic, the secondary antennas being of such shape and so arranged as to effect an intersection of the fan-shaped beams thereof to form a joint overlapping range, one of the secondary antennas being utilized for transmission of interrogation signals and the other secondary antenna being utilized for the reception of reply signals whereby the transmission-reception of such signals is effected in such overlapping range. One of the secondary antennas may be disposed adjacent the upper or lower edge of the primary antenna and the other secondary antenna disposed adjacent a side edge of the primary antenna, and each of the secondary antennas may be provided with a radiator for side-lobe suppression.

3,683,375

Patent Not Issued For This Number

3,683,376

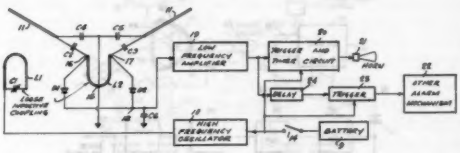
RADAR ANTENNA MOUNT

Joseph J. O. Pronovost, 48 Birchbank Rd., Bramalea, Ontario, Canada

Filed Oct. 12, 1970, Ser. No. 79,791

Int. Cl. G01s 9/00

U.S. Cl. 343—5 PD 6 Claims



In a short range radar detection device for burglar and like intrusion protection, operating on the doppler principle of detecting a frequency shift caused by a moving object, the mounting of the antenna provides structural rigidity and at the same time automatically furnishes the capacitances between the antenna, ground and an inductor, that are required for tuning the antenna system.

3,683,377

Patent Not Issued For This Number

3,683,378

HEADING ERROR COMPUTER

William L. Polhemus, Ann Arbor, Mich., assignor to Polhemus Navigation Sciences, Inc., South Burlington, Vt.

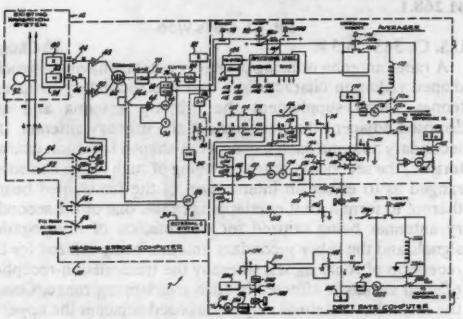
Filed May 29, 1969, Ser. No. 829,062

Int. Cl. G01s 7/10; G06g 7/22

U.S. Cl. 343—7 ED 14 Claims

Apparatus for electronically and/or electromechanically computing the heading error angle of the heading or directional sensor of a ship or aircraft equipped with naviga-

tion systems having a mapping radar and/or electronic, optical or other viewing service and a computer with offset sighting capability; the apparatus being also capable of averaging several values of the computed heading error angle and computing the rate of drift or precession of the heading sensor. In addition, the averaging and drift rate computing sections of the computer can be used to mechanize calculation of average heading error and azimuth drift rate in aircraft which do not possess the required radar and offset sighting capabilities.

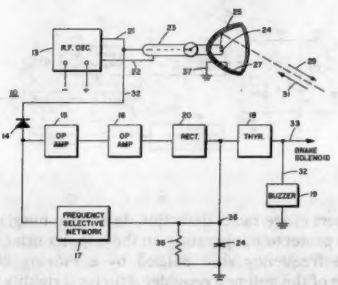


3,683,379

VEHICLE CONTROL SYSTEM AND EQUIPMENT

Ivan R. Saddler, Scottsdale, Ariz., and Robert W. Tucker, Rockville, Md., assignors to Motorola, Inc., Franklin Park, Ill.

Filed Oct. 21, 1970, Ser. No. 82,713
Int. Cl. G01s 9/02
U.S. Cl. 343—7 ED **10 Claims**



A vehicle warning and control system and equipment is disclosed utilizing radio frequencies and the Doppler principle wherein one of the vehicle lights acts as the R.F. radiator, reflector, receiving antenna as well as an illuminator, and through standard circuitry supplies a warning signal or a brake activating signal.

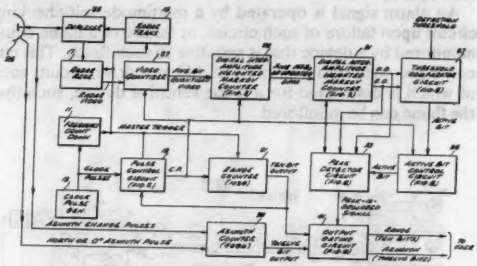
3,683,380

CASCADED DIGITAL INTEGRATOR TARGET DETECTION SYSTEM

Thomas C. Cantwell, Jr., Fullerton, and Richard D. Wilmot, Yorba Linda, both of Calif.

Filed Jan. 11, 1971, Ser. No. 105,173
Int. Cl. G01s 9/02
U.S. Cl. 343—16 R **12 Claims**

An automatic radar target detector system, in a radar receiving system, which performs antenna beam shape weighting as a part of the detection process. A first select control circuit controls the operation of a first accumulator to increment or decrement its stored count associated with each range bin interval as a function of the amplitude of the quantized video returns from each range bin interval. A second select control circuit controls the operation of a second accumulator to increment or decrement its stored count associated with each range bin interval as a function of the amplitude of the scaled-down amplitude of the output digital signals from the first accumulator to perform the antenna beam shape weighting. The output of the second accumulator is then applied to threshold detection and peak detection circuits to control other circuits for target range and azimuth detection.

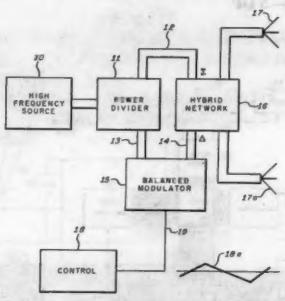


3,683,381

HIGH FREQUENCY TEST DEVICE

Harry F. Strenglein, Clearwater, Fla., assignor to Sperry Rand Corporation

Filed Feb. 1, 1971, Ser. No. 111,393
Int. Cl. G01s 7/40
U.S. Cl. 343—17.7 **7 Claims**



A high frequency signal generator and calibrated radiator system for providing signals for testing the tracking response of a radar receiver system simulates an apparent target rapidly movable along a line substantially at right angles to the direction of the system under test.

3,683,382

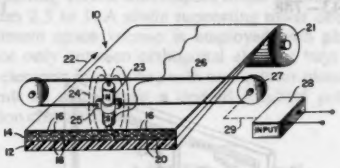
RECORDING MEDIUM RESPONSIVE TO FORCE FIELDS AND APPARATUS FOR RECORDING AND REPRODUCING SIGNALS ON THE MEDIUM

Dale O. Ballinger, Denver, Colo., assignor to Honeywell Inc., Minneapolis, Minn.

Continuation-in-part of Ser. No. 828,993, May 29, 1969, abandoned. This application Sept. 25, 1969, Ser. No. 861,019
Int. Cl. G11b 5/64, 9/00, 33/00
U.S. Cl. 346—74 M **19 Claims**

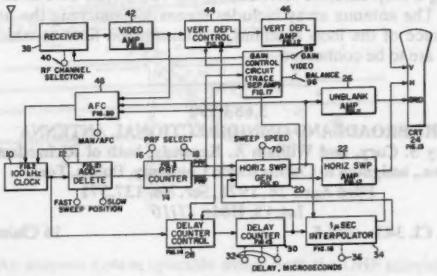
A recording medium is shown which is responsive to a magnetic or an electrostatic field for recording an input signal

thereon having a continuous web of an encapsulating or entrapping material containing a suspension of highly reflective flakes. Exposure to a magnetic or an electrostatic field



reorients the preoriented flakes to provide a contrast between the exposed portions of the recording medium and the unexposed portions thereof.

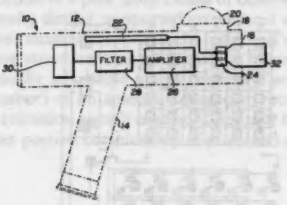
3,683,383
LORAN RECEIVER-INDICATOR
Sidney G. Knox, 4621 South G. St., Oxnard, Calif.
Filed Sept. 23, 1969, Ser. No. 860,354
Int. Cl. G01s *1/24*
U.S. Cl. 343—103 **7 Claims**



A LORAN system designed especially for shipboard and aircraft installation so as to provide a navigator with accurate positional data. The system incorporates a precision time-delay circuit having incremental steps of 10 microseconds, together with an interpolator yielding an additional delay period varying from zero to nine microseconds. The end of this time delay period is the instant at which the lower sweep is initiated on the display. Also, a unique ADD-DELETE circuit either adds or subtracts pulses from the oscillator to allow a shifting of phase of the locally-generated PRF so as to match the phase of the received PRF.

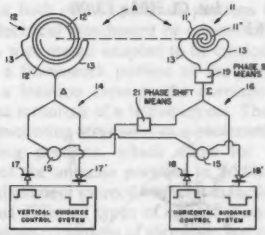
3,683,384
RADIO DIRECTION FINDER
Maurcie A. Warren, Los Angeles, Calif., assignor to Vec/Trak Research & Development Corporation, New York, N.Y.
Filed July 22, 1969, Ser. No. 843,500
Int. Cl. G01s *3/14*
U.S. Cl. 343—113 PT **9 Claims**

A radio direction finder encased in a gun-like housing and having an opening in the housing through which a replaceable fixed single frequency tuner module may be inserted in to the circuit, the tuner module being precisely tuned to the radio frequency of a radio beacon to be detected. Interposed between the output of the audio amplifier of the radio direction finder and the speaker therefor is an audio frequency filter tuned to pass the audio frequency tone of radio



beacons but to filter out all other audio frequencies, whereby to reduce the amount of noise presented to the listener.

3,683,385
DIRECTION FINDING ANTENNA SYSTEM
Robert G. Corzine, and Joseph A. Mosko, both of China Lake, Calif., assignors to The United States of America as represented by the Secretary of the Navy
Filed March 7, 1963, Ser. No. 265,003
Int. Cl. G01s *3/04*
U.S. Cl. 343—113 R **10 Claims**

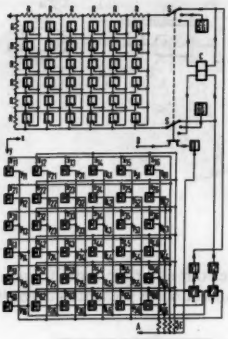


A missile-mounted antenna array includes a pair of concentric spaced spiral antennas to provide information as to angle and direction of displacement off the boresight axis of an external radiation source.

3,683,386
PROCESS FOR THE AUTOMATIC TRACKING OF THE DIRECTIONAL BEAM OF A PHASED ARRAY ANTENNA
Hans Leysieffer, Icking, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany
Filed May 22, 1970, Ser. No. 39,931
Claims priority, application Germany, May 23, 1968, P 19 26 498.3
Int. Cl. H01q *3/26*
U.S. Cl. 343—117 A **6 Claims**

A device for automatic tracking of the directional beam of a phased array antenna which includes a plurality of modules arranged in rows and columns. A part of the output voltages of the modules are coupled together to develop signals which are indicative of either the even numbered or odd numbered rows and columns of modules. The output signals are coupled to

phase discriminators which develop positive or negative voltages in dependence on the sign of the angle of incidence of the



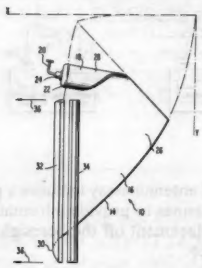
arriving signal. The control voltage is then used in a closed regulating circuit to control delay lines associated with each of the modules.

3,683,387

COMPACT SCANNING RADAR ANTENNA

James M. Meek, Silver Spring, Md., assignor to The United States of America as represented by the Secretary of the Army

Filed Dec. 28, 1970, Ser. No. 101,645
Int. Cl. H01q *13/00*
U.S. Cl. 343—761 **2 Claims**



Disclosed are radar sectoral horn antennas of the rolled and folded parallel plate type having two internal reflectors which makes possible a more compact construction. The double fold or double reflector construction is applicable to sectoral horns having an *f/d* ratio greater than one and the reflectors may be straight or curved. The horns may be provided with a dielectric, geodesic or wave guide lens and by combining two orthogonally related antennas, three dimensional scanning is possible.

3,683,388

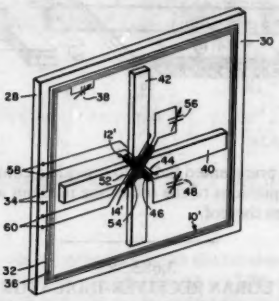
Patent Not Issued For This Number

3,683,389

OMNIDIRECTIONAL LOOP ANTENNA ARRAY

David L. Hollis, Raleigh, N.C., assignor to Corning Glass Works, Corning, N.Y.

Filed Jan. 20, 1971, Ser. No. 108,017
Int. Cl. H01q *21/00*
U.S. Cl. 343—788 **15 Claims**



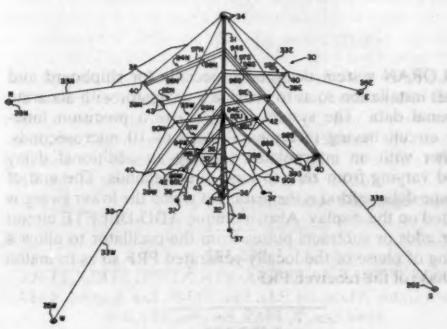
An antenna array for use with a system for receiving signals from a radio capsule disposed within a patient's gastrointestinal tract. The array of antennas comprises three mutually perpendicular loop antennas, two of which are ferrite-core loop antennas disposed near the center of the array, the third being a loop antenna surrounding the two ferrite-core antennas. The antenna array includes means for matching the impedance of the loop antennas to transmission lines to which they are to be connected.

3,683,390

HF BROADBAND OMNIDIRECTIONAL ANTENNA

Terry S. Cory, and William A. Kennedy, both of Richardson, Tex., assignors to Collins Radio Company, Dallas, Tex.

Filed April 26, 1971, Ser. No. 137,371
Int. Cl. H01q *11/10*
U.S. Cl. 343—792.5 **16 Claims**



An HF antenna providing high-angle skywave radiation at the lower end of the 2 MHz to 30 MHz band and low-angle skywave radiation at the upper frequencies with substantially gapless coverage in range from 0 to 1,000 miles with pattern characteristics optimized for propagation conditions. It utilizes predominantly horizontal polarization in minimizing ground losses in a log-periodic dipole array with elements lying in two orthogonal vertical planes with the apex substantially at ground level. It is an array with the phase center approximately a quarter-wavelength above ground at the lower frequencies and thereby near-vertical radiation for the short

path circuits. Then as the frequency increases from 2 MHz to 6 MHz, the phase center increases from a quarter-wavelength above ground to near a half-wavelength above ground, providing lower angle radiation with omnidirectional characteristics. Antenna input impedance is from 50 ohms unbalanced coax line through an impedance transforming balun to 200 ohms balanced having VSWR with respect to the 50 ohm input line of less than 2.5 to 1. A single supporting tower occupying a near-minimum space volume is employed with phase controlled not only between orthogonal element bays but also between elements in each bay with one quarter phase spacing of elements so as to attain a desired elliptical polarization propagation characteristic.

3,683,391

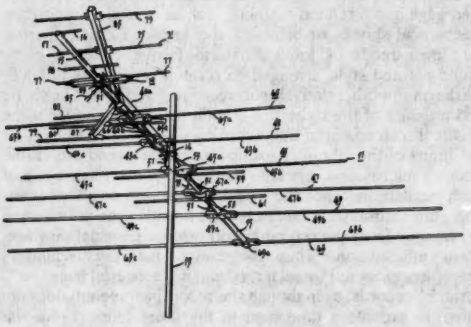
ANTENNA SYSTEM FOR TELEVISION RECEPTION WITHIN BOTH THE UHF AND VHF TELEVISION BAND OF FREQUENCIES

John D. Callaghan, Cherry Hill, N.J., assignor to RCA Corporation, New York, N.Y.

Continuation of Ser. No. 708,231, Feb. 26, 1968, abandoned. This application Oct. 19, 1970, Ser. No. 82,216

Int. Cl. H01q *5/02, 15/18, 21/30*

U.S. Cl. 343—802 **3 Claims**



An antenna system operable within both the UHF television band of frequencies and the VHF television band of frequencies is provided wherein a structure which acts as a sheet type, broadband, non-resonant reflector at UHF frequencies is spaced between a UHF driven element and the VHF driven dipole elements. The structure is constructed, for example, of parallel rods or conductors with a support member joining the rods to form a grid like construction approximating a sheet reflector. The parallel rods are of such length and are so arranged relative to said VHF driven elements to act also as a resonant director for frequencies at the high end of the VHF television band of frequencies.

3,683,392

CONVERTIBLE ANTENNA-MOUNTING STRUCTURE

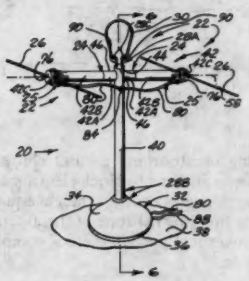
Edward Gates White, c/o P.O. Box 18948, Los Angeles, Calif.

Filed Dec. 2, 1969, Ser. No. 881,456

Int. Cl. H01q *1/08, 1/12, 21/00*

U.S. Cl. 343—805 **3 Claims**

The specification discloses an antenna-mounting structure provided with engaging means adapted to interchangeably engage and be supported by any of a plurality of different auxiliary supporting structures, such as a portion of a television set (in one form, as a replacement for the conventional so-called "rabbit ears" antenna means conventionally provided thereon), such as an auxiliary bracket, or the like, adapted to be attached to a television set or any other auxiliary mounting object or structure, such as a somewhat enlarged mounting base having a downwardly directed contact surface adapted to be movably placed upon any appropriate horizontal supporting surface of any supporting structure either near to or remote from a television set, or the like, such as a coupling means for coupling the antenna-mounting structure with respect to a lamp, either at the top of the conventional lamp shade-mounting harp structure thereof, or by attachment to the pole portion of a pole lamp means or otherwise, or such as by functionally similar, supported attachment with respect to various other auxiliary supporting objects, and with the antenna-mounting structure being adapted to mount in a readily and individually adjustable manner separate portions (of any desired number) of an antenna adapted to receive very high frequency television signals and/or, if desired, being provided with another portion (or plurality of portions) adapted to ad-



justably mount an antenna portion (or plurality thereof) adapted to receive ultra-high-frequency television signals and with either or both of said antenna portions being provided with novel electrical attachment or connector means for antenna lead-in wire means adapted to be carried in a preferred form within a framework portion of the antenna-mounting structure to a location close to the corresponding conventional antenna terminals of a television set. The framework of the antenna-mounting structure, in a preferred form, has antenna-mounting portions, which allow for the ready interchanging of the antenna portions in addition to the easy positioning adjustment thereof whereby to facilitate the reception of various different types of signals at various locations and under various conditions of reception and operation.

3,683,393

HELICAL DIPOLE ANTENNA

Aaron C. Self, Dayton, Ohio, assignor to Electrotec Corporation, Dayton, Ohio

Filed July 6, 1970, Ser. No. 52,574

Int. Cl. H01q *1/36*

U.S. Cl. 343—806 **1 Claim**

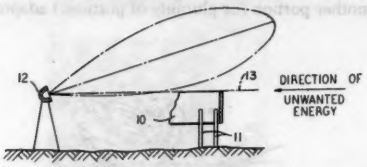
An antenna for communication equipment, in which a conductor in the form of a ribbon or strip is helically wound upon a tube or rod which is made of plastic material or the like.

3,683,394

CLUTTER FENCE FOR SUPPRESSION OF ELECTROMAGNETIC ENERGY

Phillip Hagar Smith, Berkeley Heights, N.J., assignor to Bell Telephone Laboratories, Incorporated, Berkeley Heights, N.J.

Filed July 9, 1970, Ser. No. 53,562
Int. Cl. H01q 1/52
U.S. Cl. 343—841 6 Claims



A conducting or absorbing ground clutter fence at least partly encircles an antenna to block electromagnetic energy in a horizontal band having a vertical height equal to one-half the diameter of the first Fresnel zone of the antenna and, furthermore, having a vertical portion thereof completely within the first Fresnel zone.

3,683,395

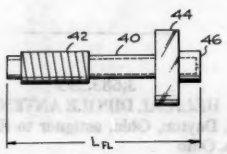
Patent Not Issued For This Number

3,683,396

METHOD AND APPARATUS FOR CONTROL OF INK DROP FORMATION

Robert I. Keur, Niles, Ill.; Sandra Miller, Lafayette, Ind., and Henry A. Dahl, Mount Prospect, Ill., assignors to A. B. Dick Company, Chicago, Ill.

Filed Aug. 5, 1970, Ser. No. 61,111
Int. Cl. G01d 15/18
U.S. Cl. 346—1 7 Claims



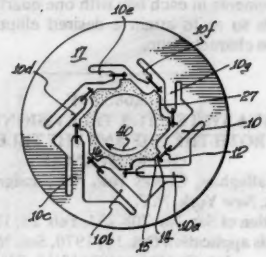
In an ink drop writing system it was found that the drops formed by vibrating a nozzle would be accompanied by smaller satellite drops which could be detrimental to printing. This condition was considerably improved by designing the nozzle so that it would have a mechanical resonance at the frequency at which it formed drops. In order to insure a most efficient transfer of power from the driving source into the drop forming mechanism, the nozzle had to be designed to provide a fluid resonance condition. If the nozzle be considered as a closed pipe, then the frequency of vibration of the fluid in the pipe at which its length is an odd multiple of a quarter wavelength of sound through the fluid in the pipe, results in the highest power transfer.

3,683,397

INSTRUMENT AND METHOD FOR RECORDING MECHANICAL TRANSIENTS

Paul D. Engdahl, 2850 Monterey Ave., Costa Mesa, Calif.

Filed Aug. 14, 1970, Ser. No. 63,752
Int. Cl. G01d 9/02
U.S. Cl. 346—1 4 Claims



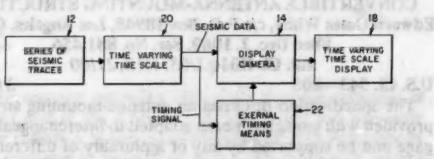
A recording accelerometer of the general type known as a read gage and a related method, such as is used in recording mechanical shocks in ballistics and impact studies. Inertial cantilever reeds of known natural frequency each carry round-pointed styli, arranged to scratch or emboss line-like marks on smooth, relatively soft recording surfaces. The shape and pressure of the stylus tips is such that they produce some plastic displacement of the recording surfaces. It is found that the limits of the vibratory excursions of each reed are visible under a microscope, marking the peaks of each half-cycle of such oscillations. Since these peaks occur at known time intervals (the natural frequencies being known), time information is obtained from the record in addition to the usual displacement information. Thus the entire decaying oscillatory waveform executed by each reed can be recovered from the "scratch" records, even though the recording medium does not move to provide a time base in the usual sense. From this waveform, a curve of force or acceleration vs. time, or shock signature, can be plotted.

3,683,398

SEISMIC DATA TIME VARYING TIME SCALE DISPLAY AND PROCESS

John K. Worley, Houston, Tex., assignor to Mandrel Industries, Inc., Houston, Tex.

Filed Sept. 27, 1968, Ser. No. 763,233
Int. Cl. G01d 9/42; G01v 1/24
U.S. Cl. 346—1 4 Claims



A time varying time scale display and the process for generating same, wherein conventional seismic data recorded at a fixed sampling rate are resampled at a preselected time

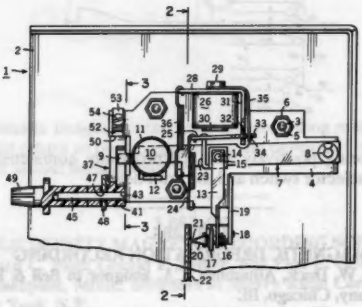
varying rate. A conventional display camera is modified to provide an external timing circuit, which during the process is actuated by a timing signal based on the preselected time varying rate. Thus the high frequency portion of the display is expanded and the low frequency portion is contracted, to provide an improved seismic display having the selected time varying time scale.

3,683,399

INFORMATION RECORDER

William A. Rock, Caldwell, N.J., assignor to Wagner Electric Corporation, Newark, N.J.

Filed Aug. 25, 1970, Ser. No. 66,807
Int. Cl. G01d *5/02*
U.S. Cl. 346—7 **17 Claims**



An information recorder is adapted for mounting on apparatus which vibrates during operation, and an oscillating member is pivotally mounted in said recorder for oscillating movement relative thereto in response to vibrations of the apparatus. A stop is provided in the recorder to limit the oscillating range of the oscillating member in one direction, and a manually operable member is rotatably mounted in said recorder for movement between selected positions in a plane substantially normal to that in which the oscillating member is movable. The manually operable member is provided with a plurality of off-set abutments for engagement with the oscillating member and predeterminately spaced from the stop in each selected position of the manually operable member to limit the oscillating range of the oscillating member in the direction opposite to the one direction. A marking member is connected with the oscillating member to record the movements thereof on an associated chart, and an electric solenoid is selectively energized to relieve a spring load on the oscillating member to effect the oscillating movement thereof.

3,683,400

Patent Not Issued For This Number

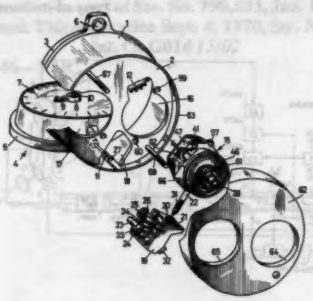
3,683,401

TACHOGRAPHIC MEASURING AND INDICATING APPARATUS

Karl Vogtlin, Villingen; Hermann Holtz, Malmsheim, and Norbert Helmschrott, Schwenningen, all of Germany, assignors to Kienzle Apparate GmbH, Villingen, Germany

Filed Feb. 3, 1970, Ser. No. 12,478
Int. Cl. G01d *9/00*
U.S. Cl. 346—18 **11 Claims**

A tachographic measuring and indicating apparatus which is composed of at least one measuring unit, at least one transmission unit, and an indicator unit driven from the measuring unit through the transmission unit. The measuring unit, the transmission unit, and the indicator unit are detachably supported on a supporting casing in such a manner that each unit



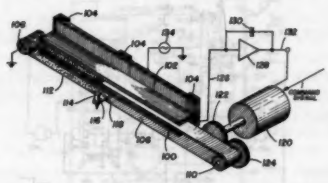
can be separately manufactured and combined with the other units, and also individually removed for service or adjustment.

3,683,402

CAPACITIVE TRANSDUCER DRIVE MECHANISM FOR THE RECORDING PEN OF A GRAPHICAL RECORDER

James A. Parnell, Houston, Tex., assignor to Bausch & Lomb Incorporated, Rochester, N.Y.

Continuation-in-part of Ser. No. 688,500, Dec. 6, 1967, abandoned. This application Nov. 12, 1970, Ser. No. 88,556
Int. Cl. G01d *3/06*
U.S. Cl. 346—32 **8 Claims**



A variable capacitive transducer is employed in a graphical recording device in conjunction with its pen drive mechanism. Two fixed conductive plates are mounted within the recorder parallel to each other and a flexible belt, partly coated with a conductive film, is movably mounted therebetween. The recording pen is attached to the belt which serves as both the feedback element in the pen drive servo system and pen conveyor. Since the pen is attached directly to the belt which, in turn, provides a highly accurate indication of pen position, there is no need to provide any mechanical means for converting the pen's linear motion to rotary motion which avoids the attendant conversion errors.

3,683,403

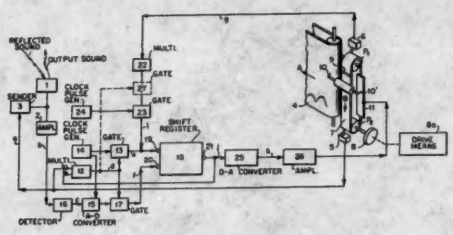
SOUNDING DEVICE FOR MEASURING A DISTANCE TO OBJECTS

Mutsuo Okino, Tokyo, Japan, assignor to Japan Radio Company, Limited, Tokyo, Japan

Filed Nov. 9, 1970, Ser. No. 87,770
Claims priority, application Japan, Nov. 8, 1969, 44/89660
Int. Cl. G01s *7/60*
U.S. Cl. 346—33 EC **11 Claims**

A sounding device for measuring distance to an object wherein the transmitted and received reflected sound waves are converted to digital signals which are stored in a memory device at a variable rate. The storage rate of information in the

memory device is set in accordance with the range of the distances being measured. The stored information is read out of the memory device at a fixed repetition rate and is fed to a display means which indicates the distance to the object.

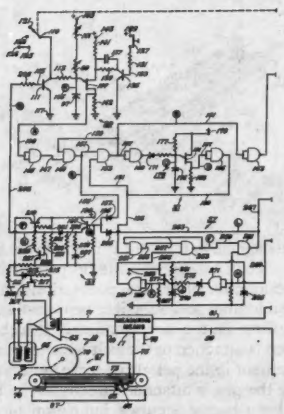


3,683,404

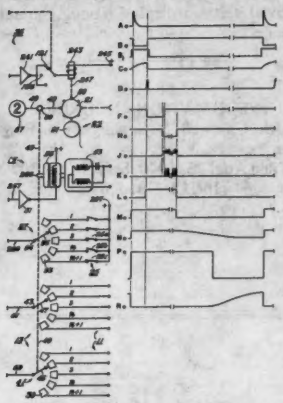
MULTI CHANNEL MONITORING AND PRINTING RECORDER APPARATUS

John D. Dennis, Fort Worth, and James M. Winkler, Burleson, both of Tex., assignors to Westronics, Inc., Ft. Worth, Tex.

Filed June 12, 1970, Ser. No. 45,796
Int. Cl. G01d *9/34*
U.S. Cl. 346—34 **7 Claims**



A multi point recorder having a plurality of input terminals; selector switch for monitoring respective ones of the input terminals; indexing assembly for simultaneously and synchronously indexing the selector switch and a print head; measuring circuit; positioning apparatus for positioning the print head in accordance with the measured magnitude; and characterized by a plurality of bypass switches; a bypass deck connected with the selector switch so as to track synchronously therewith; a scan timer for generating periodically a signal that will initiate a print and index operation; a desensitizer circuit and a print signal generator circuit connected serially with the scan timer for stopping the positioning apparatus and effecting a printing by the print head; and an indexing signal generator circuit for also controlling the desensitizing and the indexing to the next input terminal that is not to be bypassed, and then allowing positioning and timing. Also disclosed is a preferred embodiment in which a channel indicator is remotely mounted so as to be readily visible, the indicator being positively and synchronously connected with both the selector switch and the print head.

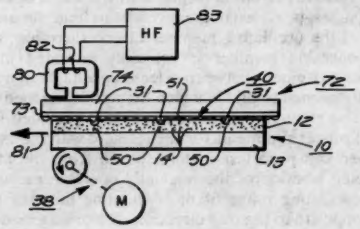


3,683,405

MAGNETIC DEFORMATION RECORDING

Sherman W. Duck, Alhambra, CA, assignor to Bell & Howell Company, Chicago, Ill.

Filed June 17, 1970, Ser. No. 47,065
Int. Cl. G11b *7/00;* **H04n** *5/82*
U.S. Cl. 346—74 TP **12 Claims**



A method of recording information provides, in a deformable magnetic recording medium, deformed portions representative of the information, and magnetizes these deformed portions differently from other portions of the magnetic recording medium so as to establish a magnetic record of the information.

3,683,406

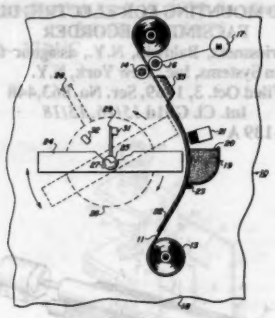
MAGNETIC INCREMENTAL CASCADE DEVELOPEMENT SYSTEM

Richard S. Howell, Webster, N.Y., assignor to Xerox Corporation, Rochester, N.Y.

Filed Dec. 30, 1969, Ser. No. 889,272
Int. Cl. G01d *15/12*
U.S. Cl. 346—74 ES **9 Claims**

Electrographic recording device wherein development takes place at the recording station in such a manner that obscuring of the developed image by the developer unit is minimized. A developer trough or retaining structure constituting one part of the developing unit precedes the recording station. An oscillating magnet, forming another part of the

developing unit and positioned adjacent the rear surface of the recording medium, effects movement of developer over latent



electrostatic images printed upon the recording medium and its rapid return to the trough so that the developed image can be seen almost immediately.

3,683,407

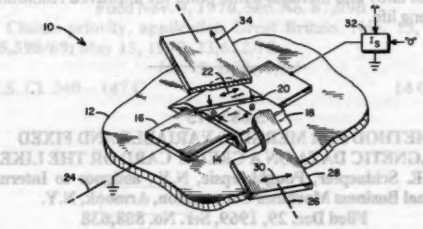
HIGH DENSITY MAGNETIC RECORDING SCHEME

Maynard C. Paul; Gerald F. Sauter, and Paul E. Oberg, all of Minneapolis, Minn., assignors to Sperry Rand Corporation, New York, N.Y.

Filed May 21, 1970, Ser. No. 39,194

Int. Cl. G11b *5/16, 5/02*

U.S. Cl. 346—74 M **5 Claims**



A method of high density magnetic recording with a single bipolar signal field using a magnetic recording head having a recording gap that is inductively coupled to a relatively moving thin-ferromagnetic-film recording medium of a thickness that is insufficient to support Bloch walls, i.e., can only support Neel walls, between adjacent domains and having an easy axis that is orthogonal to the direction of relative movement of, or parallel to, the recording gap length. The recording medium's interdomain Neel walls are formed with the magnetization within the interdomain walls all having the same directional rotational, i.e., winding, sense, e.g., clockwise or counterclockwise, by utilizing a magnetic recording head that has its recording gap parallel to the recording medium's easy axis, and that has a drive line that provides a bipolar signal field that is oriented at an acute angle to the recording gap so that the gap field and an orthogonal component of the driveline provided signal filed are applied orthogonally and parallel, respectively, to the easy axis direction of the recording medium.

3,683,408

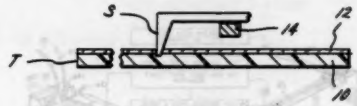
APPARATUS FOR FORMING A RECORD ON A TAPE

John C. Kinley; Wayne D. Floeck, and Charles W. Agee, all of Houston, Tex., assignors to John C. Kinley, Houston, Tex.

Continuation-in-part of Ser. No. 790,593, Jan. 13, 1969, abandoned. This application Sept. 4, 1970, Ser. No. 69,550

Int. Cl. G01d *15/02*

U.S. Cl. 346—77 R **5 Claims**



Apparatus for forming a record on a tape having a transparent portion and an opaque portion, whereby a stylus is adapted to cut the tape to a controlled depth so as to cut through the opaque portion of the tape without cutting through the transparent portion thereof.

3,683,409

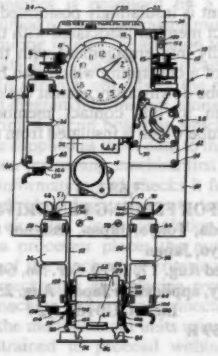
PORTABLE ATTENDANCE RECORDER

Emanuel Barkas, Hamden, Conn., assignor to Mite Corporation, New Haven, Conn.

Filed Aug. 18, 1969, Ser. No. 850,876

Int. Cl. G07c *1/00*

U.S. Cl. 346—91 **14 Claims**

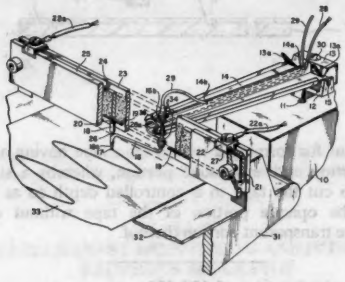


A portable self-powered attendance recorder comprises a timing clock, means connected to the timing clock for recording the time from the clock on a time card, a motor for driving the timing clock, and a self-powered direct current voltage source electrically connected to the motor to drive the same. The use of a self-powered direct current source enables the recorder to be operational without the use of an external power source so that it may be transported to and operated at substantially any location. In the preferred embodiment the motor is an alternating current synchronous motor and an inverter unit is connected between the direct current voltage source and the motor to convert the output of the voltage source to an alternating voltage to drive the motor. The direct current voltage source may comprise a plurality of batteries mounted on a frame which is itself positioned between support plates of the type found on a standard attendance recorder so that the recorder need not be enlarged to provide space for the batteries.

3,683,410
RECTILINEAR RECORDING ARRANGEMENT FOR DIRECT WRITING OSCILLOGRAPHS

Leslie E. Fowler, Arlington Heights, Ill., assignor to Beckman Instruments, Inc.

Filed Aug. 5, 1970, Ser. No. 61,117
Int. Cl. G01d 5/02
U.S. Cl. 346—117 A 18 Claims

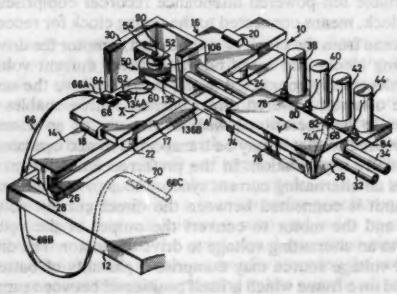


An electrically conductive ink tube having an insulating tip portion adapted to engage the chart paper is hingedly or slidably mounted in the free end of a rotatable pen body. Means are provided defining a downwardly opening guide slot positioned above the chart and transversely thereof. The ink tube carries a guide member which rides in the guide slot and forces the tip portion of the ink tube to move in a straight line in response to rotary movement of the pen body. A flat strip resistance element is insulatingly positioned within the guide slot and a contact member associated with the guide member is biased upwardly into engagement with the resistance element by means of a coil spring which also biases the tip portion of the ink tube downwardly against the chart paper. Electrical connection to this contact member is established through the ink tube which is insulated from the pen body.

3,683,411
APPARATUS FOR FEEDING PEN-DRIVING CURRENT

Tetsusaburo Ikeda, Tokyo, Japan, assignor to Iwatsu Electric Co., Ltd., Tokyo, Japan

Filed Aug. 17, 1970, Ser. No. 64,406
Claims priority, application Japan, Aug. 25, 1969, 44/79898
Int. Cl. G01d 15/24
U.S. Cl. 346—139 R 1 Claim

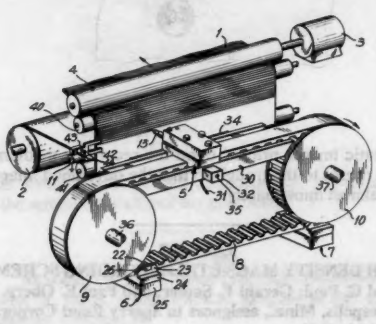


An apparatus for feeding pen-driving current through a feeding wire to movable pen means including a wire winding drum rotatably journaled to a fixed member, the feeding wire being wound around the drum, and resilient means urging the drum to turn in the winding direction of the wire.

3,683,412
STYLUS AND MOUNTING FOR ELECTRIC DISCHARGE FACSIMILE RECORDER

Edmund F. Priessnetz, Baldwin, N.Y., assignor to Electronic Transmission Systems, Inc., New York, N.Y.

Filed Oct. 3, 1969, Ser. No. 863,448
Int. Cl. G01d 15/16, 15/18
U.S. Cl. 346—139 A 6 Claims

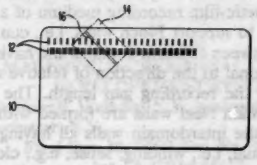


A stylus for use in an electric discharge facsimile recorder having a mounting means adapted for connection to an endless belt. The mounting which holds the stylus also includes means for accurately adjusting its relative position with respect to the recording paper. The stylus is constructed from a metal alloy and includes a fine point for improved resolution and long life.

3,683,413
METHOD FOR MERGING VARIABLE AND FIXED MAGNETIC DATA ON A CREDIT CARD OR THE LIKE

Carl E. Schlaepfer, Poughkeepsie, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 29, 1969, Ser. No. 888,638
Int. Cl. G11b 5/02, 5/80; G06k 19/06
U.S. Cl. 340—174.1 R 1 Claim



A plurality of discrete magnetic bits are affixed to a record card in a predetermined low density pattern. High density information is subsequently recorded on said discrete bits by utilizing a magnetic head having a gap positioned at an oblique slant with respect to the discrete bits.

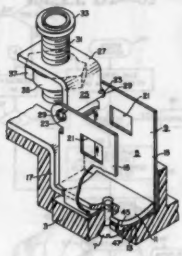
3,683,414
TERMINAL DEVICE

Gerald J. DeAngelo, 156 Twin Brook Terrace, Monroe, Conn.; Francis L. Gelzheiser, 392 S. Benson Road, and Kenneth R. Coley, 430 Edward St., both of Fairfield, Conn.

Continuation of Ser. No. 731,246, May 22, 1968, abandoned. This application April 13, 1970, Ser. No. 28,186

Int. Cl. H01r 11/10

U.S. Cl. 339—272 UC 14 Claims



An improved terminal device comprises resilient means for compensating for cold flow of a conductor that may be pressure-connected to the terminal device.

3,683,415
CALCULATING MACHINES

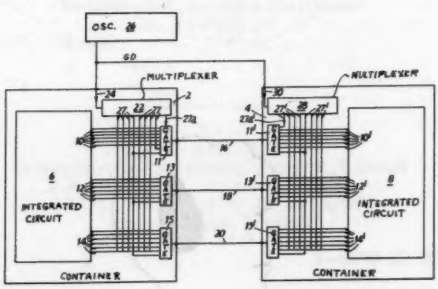
John George Lloyd, and John David Letheren, both of Uxbridge, England, assignors to Sumlock Anita Electronics Limited, The Island, Uxbridge, Middlesex, England

Filed Nov. 9, 1970, Ser. No. 87,898

Claims priority, application Great Britain, Nov. 13, 1969, 55,599/69; May 15, 1970, 23,612/70

Int. Cl. H04q 9/04

U.S. Cl. 340—147 C 14 Claims



A calculating machine is disclosed employing interconnected integrated circuit. The integrated circuits are so arranged to minimize circuit connections therefrom comprising for example three single connections. This is achieved by means of gates within the integrated circuit chip and multiplexer which is operated from an external oscillator.

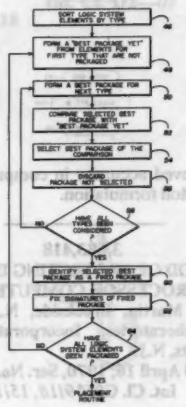
3,683,416
PROCESS FOR GENERATING REPRESENTATIONS OF PACKAGES OF LOGIC ELEMENTS UTILIZING A DATA PROCESSING MACHINE

Joseph A. Ballas, Dallas, and Robert A. Penick, Richardson, both of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Jan. 8, 1970, Ser. No. 1,447

Int. Cl. G05b 19/00

U.S. Cl. 444—1 26 Claims


SORT LOGIC SYSTEM ELEMENTS BY TYPE
FORM A "BEST PACKAGE YET" FROM ELEMENTS FOR FIRST TYPE THAT ARE NOT PACKAGED
FORM A BEST PACKAGE FOR NEXT TYPE
COMPARE SELECTED BEST PACKAGE WITH "BEST PACKAGE YET"
SELECT BEST PACKAGE OF THE COMPARISON
DISCARD PACKAGE NOT SELECTED
HAVE ALL TYPES BEEN CONSIDERED ?
NO
YES
IDENTIFY SELECTED BEST PACKAGE AS A FIXED PACKAGE
FIX SIGNATURES OF FIXED PACKAGE
HAVE ALL LOGIC SYSTEM ELEMENTS BEEN PACKAGED ?
NO
YES
PLACEMENT ROUTINE

Artwork for a logic circuit to be fabricated by printed circuit board techniques is produced by a data processing machine programmed to run a packaging routine, a placement routine, and a routing routine, in addition to check routines. All logic elements for a particular circuit are coded and identified prior to carrying out any of the machine run routines. This circuit diagram information, along with mechanical criteria of the printed circuit board on which the circuit is to be fabricated, are supplied as input data to the data processing machine. The data processing machine first takes the coded circuit diagram information and checks it for errors. It then packages the individual logic elements into multi-element units (integrated circuits). Upon completion of the packaging routine, the data processor places the multi-element units within the limits of the mechanical criteria supplied as input data. After the packaging and placing routines have been completed, the machine routes interconnections between the terminal pins of the multi-element units using a numbered ordered maze restrained to proceed within pre-established limits.

3,683,417
APPARATUS AND MACHINE-IMPLEMENTED PROCESS FOR DETERMINING THE TERMINAL CHARACTERISTICS OF A BIPOLAR TRANSISTOR

Hermann Karl Gummel, North Plainfield, N.J., assignor to Bell Telephone Laboratories, Incorporated, Berkeley Heights, N.J.

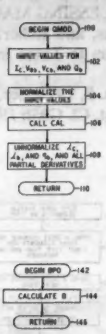
Filed Jan. 23, 1970, Ser. No. 5,171

Int. Cl. G06f 15/04, 15/32

U.S. Cl. 444—1 13 Claims

Apparatus incorporating a machine-implemented process of analyzing bipolar transistors which is suitable for use in network analysis and design computer programs and which is particularly applicable to the analysis of integrated circuit transistors. The process uses a novel charge control relation

linking junction voltages, collector current and base charge in which the base charge is expressed as a function of the bias,



resulting in improved accuracy in comparison with the conventional Ebers-Moll formulation.

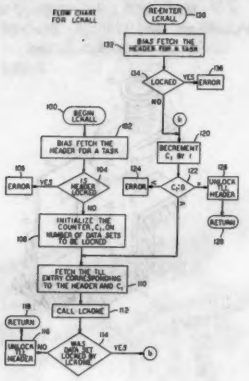
3,683,418

METHOD OF PROTECTING DATA IN A MULTIPROCESSOR COMPUTER SYSTEM

Robert Lanham Martin, Brookside, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed April 16, 1970, Ser. No. 29,094
Int. Cl. G06f 9/18, 15/16
U.S. Cl. 444—1 **7 Claims**

A machine process that performs the function of assigning particular tasks to individual processors in a multiprocessor computer system so as to prevent undesired simultaneous access of stored data by two or more processors. The machine process read-locks all blocks of data that will be read by a task and write-locks all blocks of data that will be written into by a task immediately preceding the execution of that task. All blocks of data that were locked before a task was executed and not unlocked by the task during its execution, are unlocked upon its completion.



DESIGNS

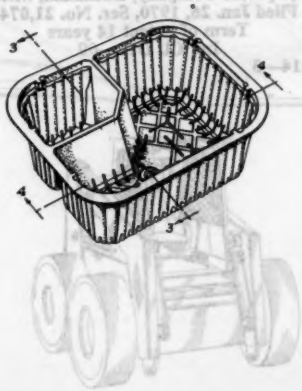
AUGUST 8, 1972

224,582
JACKET
Louis J. Fagioli, 120 Faywood Ave., Boston, Mass. 02128
Filed Jan. 4, 1971, Ser. No. 103,960
Term of patent 14 years
Int. Cl. D2—*02*
U.S. Cl. D2—183

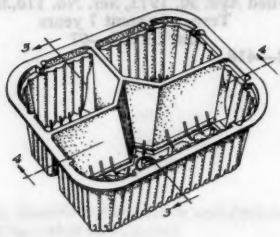
224,583
EAR COVERING
Lester D. Hames, 7600 Embassy Terrace, Oklahoma City, Okla. 73108
Filed Nov. 17, 1969, Ser. No. 20,147
Term of patent 14 years
Int. Cl. D2—*03*
U.S. Cl. D2—259

224,584
LACING HOOK
Danilo Parpaiola and Giancarlo Callegaro, both of Via Cesare da Sesto 15, Milan, Italy
Filed Apr. 30, 1971, Ser. No. 110,356
Term of patent 7 years
Int. Cl. D2—*07*
U.S. Cl. D2—418

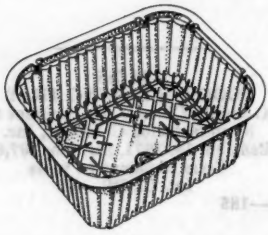
224,585
FOOD PACKAGING TRAY
Donald K. Jewell, Chicago, Ill., assignor to Lincoln Manufacturing Company, Inc.
Filed Jan. 18, 1971, Ser. No. 107,603
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—185



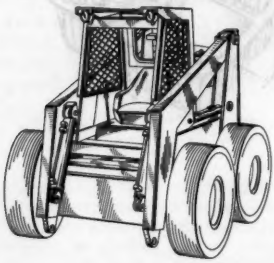
224,586
FOOD PACKAGING TRAY
Donald K. Jewell, Chicago, Ill., assignor to Lincoln Manufacturing Company, Inc.
Filed Jan. 18, 1971, Ser. No. 107,615
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—185



224,587
FOOD PACKAGING TRAY
Donald K. Jewell, Chicago, Ill., assignor to Lincoln Manufacturing Company, Inc.
Filed Jan. 18, 1971, Ser. No. 107,616
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—219

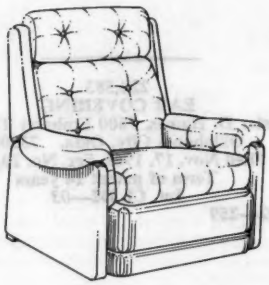


224,588
SELF-PROPELLED LOADER VEHICLE
James J. Bauer, Lisbon, N. Dak., assignor to Clark Equipment Company, Buchanan, Mich.
Filed Jan. 26, 1970, Ser. No. 21,074
Term of patent 14 years
Int. Cl. D12—*09*
U.S. Cl. D14—3



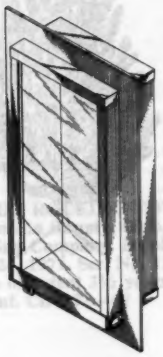
224,589
TRAVEL TRAILER
Howard T. Chow, Pasadena, Calif., assignor to Compact Investment and Leasing Company, Buena Park, Calif.
Filed Apr. 7, 1971, Ser. No. 132,267
Term of patent 14 years
Int. Cl. D12—*10*
U.S. Cl. D14—3

224,590
CHAIR
Morris F. Fisher, Carmel, Ind., assignor to Mohasco Industries, Inc., Amsterdam, N.Y.
Filed Dec. 23, 1970, Ser. No. 26,632
Term of patent 14 years
Int. Cl. D6—*02*
U.S. Cl. D15—1



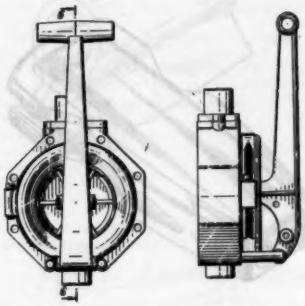
224,591
EASY BREAK TABLET
Edwin F. Roberts, Stamford, Conn., assignor to Ives Laboratories, Inc., New York, N.Y.
Filed Jan. 27, 1971, Ser. No. 110,364
Term of patent 14 years
Int. Cl. D28—*01;* D1—*01*
U.S. Cl. D16—1

224,592
FIRE EXTINGUISHER CABINET
William L. Fudge, Minneapolis, Minn., assignor to Larsen's Manufacturing Company, Minneapolis, Minn.
Continuation of design applications Ser. No. 18,375, July 24, 1969, and Ser. No. 18,383, July 24, 1969. This application Dec. 15, 1969, Ser. No. 20,711
Term of patent 14 years
Int. Cl. D29—*01*
U.S. Cl. D16—2



224,593
FISHING LURE
William D. Storm, P.O. Box 265, Norman, Okla. 73069
Filed June 15, 1970, Ser. No. 23,487
Term of patent 14 years
The portion of the term of the patent subsequent to Dec. 20, 1980, has been disclaimed
Int. Cl. D22—*05*
U.S. Cl. D22—28

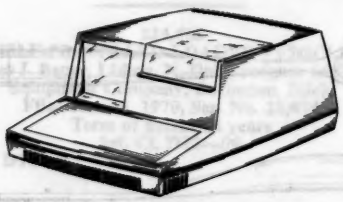
224,594
MANUALLY OPERATED DIAPHRAGM PUMP
Randal Munster Eves, Bangor, and William John Brian, Ballywalter, Northern Ireland, assignors to Munster Simms Engineering Limited, Belfast, Northern Ireland
Filed Aug. 10, 1970, Ser. No. 24,396
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—14



224,595
TEETH CLEANING APPARATUS
James R. Dougherty, 5913 NW. 82nd Circle, Oklahoma City, Okla. 73132
Filed Mar. 9, 1971, Ser. No. 122,652
Term of patent 3½ years
Int. Cl. D24—*03*
U.S. Cl. D24—1

224,596
VOLTAGE TESTER CASING
James E. Winfrey, Asheville, and Wallace Hoyt Orr, Hendersonville, N.C., assignors to Square D Company, Park Ridge, Ill.
Filed Mar. 8, 1971, Ser. No. 122,263
Term of patent 14 years
Int. Cl. D10—*05*
U.S. Cl. D26—1

224,597
CASING FOR AN ELECTRONIC DATA TERMINAL
William A. Sours, Sauquoit, N.Y., assignor to Cogar Corporation, Wappingers Falls, N.Y.
Filed Jan. 8, 1971, Ser. No. 105,148
Term of patent 14 years
Int. Cl. D14—*02*
U.S. Cl. D26—5

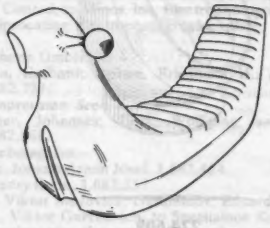


224,598
CHRISTMAS TREE
Joseph T. Gelardi, Yonkers, N.Y., assignor to American Technical Industries, Inc., Mount Vernon, N.Y.
Filed Nov. 5, 1969, Ser. No. 19,951
Term of patent 14 years
Int. Cl. D11—*04*
U.S. Cl. D29—1

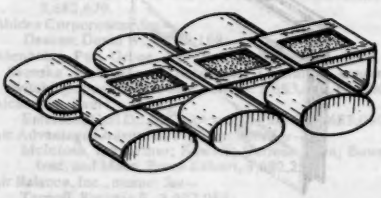
224,599
PENDANT
Ade Bethune, Newport, R.I., assignor to Terra-Sancta Creations, Inc., Philadelphia, Pa.
Filed Nov. 13, 1970, Ser. No. 25,962
Term of patent 14 years
Int. Cl. D11—*03*
U.S. Cl. D29—19

224,600
HOT LATHER DISPENSER
Martin Glaberson, Ardsley, N.Y., and Robert J. Gould, Fairfield, Conn., assignors to Warner-Lambert Company, Morris Plains, N.J.
Filed Mar. 30, 1971, Ser. No. 129,413
Term of patent 14 years
Int. Cl. D6—*06*
U.S. Cl. D33—30

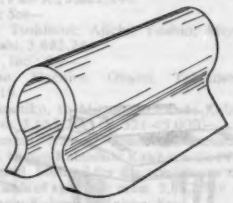
224,601
CHILD'S ROCKING TOY
Richard E. Cone, Franklin County, Ohio, assignor to The Delphos Bending Company, Delphos, Ohio
Filed Feb. 24, 1971, Ser. No. 118,586
Term of patent 3½ years
Int. Cl. D21—*01*
U.S. Cl. D34—15



224,602
LINK CHAIN FOR A BRACELET OR SIMILAR ARTICLE
Yuen Sang Poon, 36 Kam Wah St., Hong Kong
Filed Nov. 13, 1970, Ser. No. 25,966
Term of patent 14 years
Int. Cl. D11—*01*
U.S. Cl. D45—4



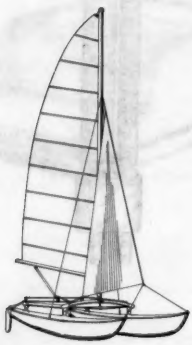
224,603
SCRAPER TOOL
Guy N. Wetzel, 1040 S. Roosevelt Ave., Bexley, Ohio 43209
Filed Feb. 15, 1971, Ser. No. 15,911
Term of patent 14 years
Int. Cl. D8—*05*
U.S. Cl. D49—23



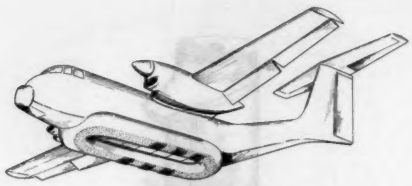
224,604
GAS FLOWMETER
James A. Huggins, Libertyville, Ill., assignor to Baxter Laboratories, Inc., Morton Grove, Ill.
Filed Apr. 9, 1971, Ser. No. 132,924
Term of patent 14 years
Int. Cl. D10—*04*
U.S. Cl. D52—6

224,605
PRINTER
Loring C. Bixler, Vestal, Arnold M. Davis, Poughkeepsie, Donald F. Lahey, Vestal, Walter S. McCormick, Jr., Poughkeepsie, and Edward R. Wiener, Vestal, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed May 10, 1971, Ser. No. 142,124
Term of patent 14 years
Int. Cl. D18—*01*
U.S. Cl. D64—11

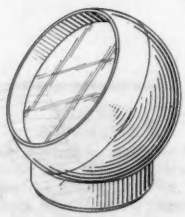
224,606
CATAMARAN SAILBOAT
Hobart L. Alter, Capistrano Beach, Calif., assignor to Coast Catamaran Corporation, Capistrano Beach, Calif.
Filed Aug. 5, 1970, Ser. No. 24,326
Term of patent 14 years
Int. Cl. D12—*06*
U.S. Cl. D71—1



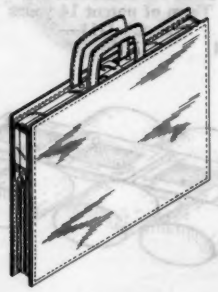
224,607
AIRCRAFT
T. Desmond Earl, Buffalo, N.Y., assignor to Textron Inc., Providence, R.I.
Filed Aug. 31, 1970, Ser. No. 24,764
Term of patent 14 years
Int. Cl. D12—*07*
U.S. Cl. D71—1



224,608
MIRRORED COSMETIC CONTAINER
Hideno N, Okuhara and Hiroko L. Okuhara, both of 6449 N. Greenview Ave., Chicago, Ill. 60626
Filed July 26, 1971, Ser. No. 166,326
Term of patent 14 years
Int. Cl. D3—*02*
U.S. Cl. D86—10



224,609
ATTACHE CASE
Nathan Weltz, 2049 Ryer Ave., New York, N.Y. 10457
Filed Nov. 24, 1970, Ser. No. 26,148
Term of patent 14 years
Int. Cl. D3—*01*
U.S. Cl. D87—5



LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 8TH DAY OF AUGUST, 1972

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

Abe, Hideki: *See—*
Itoyama, Hiroshi; and Abe, Hideki, 3,681,916.

Abraham, Andre; and Tasfi, Laszlo, to Tatobayai Szenbanyak. Apparatus for the biological purification of waste water. 3,682,313, Cl. 210-195.000.

Abraham, Edward D.: *See—*
Blower, Warren A.; Janke, Gilbert J.; and Abraham, Edward D., 3,682,230.

Abramitis, Walter W.: *See—*
Reck, Richard A.; and Abramitis, Walter W., 3,683,010.

Abu-Momtaz M. Electrokinetic heat pipe. 3,682,239, Cl. 165-1.000.

Acme Highway Products Corporation: *See—*
Kerschner, James J., 3,682,053.

Acme Marls Limited: *See—*
Lovatt, William John, 3,681,817.

Actor, Philip Pau; and Pagano, Joseph Frank, to Smith Kline & French Laboratories. 5(6)-n-Butyl-2-carbomethoxy-benzimidazole. 3,682,952, Cl. 260-309.200.

Adamczyk, Marion F. Holder for feeding punched tape. 3,682,405, Cl. 242-55.000.

Adams, Gerald E.; and Van Buskirk, Edward C., to Uniroyal, Inc. Thermoformable laminated sheet material having elastomeric block copolymer core and ABS plastic covering layers. 3,682,768, Cl. 161-253.000.

Adams, James William; and Tilloson, August Henry, to American Can Company. Viscosty increasing agent of polymer-grafted cellulose fibers and method therefor. 3,682,856, Cl. 260-17.4gc.

Adams, Robert T.: *See—*
Grobert, Paul H.; Adams, Robert T.; and Klein, Melvin S., 3,683,165.

Adamson, David L.: *See—*
Tuddenham, William Marvin; and Adamson, David L., 3,682,798.

A.D.C.O. Fmg. Co., Inc.: *See—*
Landers, Adrian L.; and Byrd, Commodore B., 3,682,210.

Adde, Joseph W.: *See—*
Malon, Jean Pierre; and Adde, Joseph W., 3,682,512.

Addressograph-Multigraph Corporation: *See—*
Kent, Richard T.; and Koch, Robert M., 3,682,077.

Adelman, Conrad, to Minos, Inc. Electrophotographic system employing reciprocating electrophotographic plate. 3,682,541, Cl. 355-3.000.

AEG-Elotherm GmbH: *See—*
Seulen, Gerhard; Reinke, Friedhelm H.; and Stengel, Edgar, 3,682,721.

A.G. Rheinpreussen: *See—*
Wollner, Johannes; Tietz, Wolfgang; and Neier, Wilhelm, 3,682,868.

AGA Aktiebolag: *See—*
Bohac, Johann Armin Josef, 3,682,454.
Islo Henry Ervin, 3,682,237.

Agalakov, Viktor Iosifovich; Guselnikov, Eduard Mitrofanovich; and Smaikin, Viktor Gavrilovich, to Spetsialnoe Konstruktorskol Bjuro Po Oborudovaniju dlya proizvrdstva asbestotsementnykh Izedely I Rulonnokrovelnykh Materialov. Brake induction motor. 3,683,17, Cl. 310-77.000.

Agee, Charles W.: *See—*
Kinley, John C.; Floeck, Wayne D.; and Agee, Charles W., 3,683,408.

Ager, John W., Jr., to FMC Corporation. Oxidation of p-xylene and p-toluic acid to terephthalic acid. 3,683,017, Cl. 260-524.00r.

Agerbeek, Paul F.: *See—*
Vincken, Leonardus M. J.; Agerbeek, Paul F.; and Hoekenga, Piet E., 3,681,928.

Agfa-Gevaert: *See—*
Stievenart, Emile Frans, 3,682,082.

Agfa-Gevaert Aktiengesellschaft: *See—*
Herzhoff, Peter; Gref, Hans; Maus, Fritz; Wasser, Willi; Browatzki, Kurt; Friedsam, Josef; and Schweicher, Wolfgang, 3,682,679.

Ahldea Corporation: *See—*
Deaton, David W., 3,682,168.

Ahrnholm, Par; Grune, Per-Olof; and Nygaard, Tore, to Allmanna Svenska Elektriska Aktiebolaget. Operating means for electric switching apparatus for high voltage. 3,683,142, Cl. 200-148.00r.

Aichenegg, Paul C.: *See—*
Emerson, Carl D.; and Aichenegg, Paul C., 3,683,000.

Air Advantage (Australia) Pty., Limited: *See—*
McIntosh, Ian Arthur; Bowers, Norman John; Bowers, Brian Alfred; and Miles, Bruce Robert, 3,682,253.

Air Balance, Inc., mesne: *See—*
Tarnoff, Sherwin S., 3,682,084.

Air Products and Chemicals, Inc.: *See—*
Holland, Dewey G.; and Garis, Eric Vernon, 3,683,036.

Air Reduction Company, Incorporated: *See—*
Miller, Henry A., 3,682,437.
Van Loan, Paul R., 3,682,840.

Ajichi, Yoshio: *See—*
Kitamura, Toshinori; Ajichi, Yoshio; Miyata, Itaru; and Ono, Masayushi, 3,683,244.

Ajinomoto Co., Inc.: *See—*
Wakamatsu, Hachiro; Okami, Taketoshi; and Sato, Jiro, 3,683,019.

Akamatsu, Masahiko, to Mitsuhishi Denki Kabushiki Kaisha. Power control system. 3,683,267, Cl. 321-45.000.

Akamatsu, Susumu, 1/2% to Susumu, Akamatsu and 1/2% to Mitsubishi Kasei Kogyo Kabushiki Kaisha; a/t/a Mitsubishi Chemical Industries Limited. Method for the continuous manufacture of corrugated cardboards of synthetic resin. 3,682,736, Cl. 156-210.000.

Akechi Taikarengs Kabushiki Kaisha: *See—*
Nakamura, Toshio; and Ozeki, Hidekichi, 3,682,686.

Akg Akustische u. Kino-Gerate Gesellschaft: *See—*
Gorike, Rudolf, 3,682,268.

Akron Standard, division of Eagle-Picher Industries, Inc.: *See—*
Gross, Werner L., 3,682,576.

Akrongold, Harold S.; Akrongold, Rochelle; and Goldsmith, Michael. Hair dye protective agent. 3,683,004, Cl. 260-465.900.

Akrongold, Rochelle: *See—*
Akrongold, Harold S.; Akrongold, Rochelle; and Goldsmith, Michael, 3,683,004.

Aksu, Akin. Indicating apparatus. 3,683,121, Cl. 179-84.00c.

Aktiebolaget Atomenergi: *See—*
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Aktiebolaget Electrolux: *See—*
Blomberg, Peter Erik; and Enger, Lars Sivert, 3,681,938.

Aktiebolaget Leo (AB Leo): *See—*
Eriksoo, Edgar; Fex, Hans Jacob; Hogberg, Knut Bertil; Mollberg, Henri Rene; and Rohte, Oskar Adolf, 3,682,973.

Aktiengesellschaft Berlin and Munich: *See—*
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Aktiengesellschaft Brown, Boveri & Cie: *See—*
Wild, Peter J., 3,683,285.

Aktiengessellschaft Brown, Boveri & Cie: *See—*
Pisecker, Johann, 3,683,251.

Akulova, Galina Iosifovna: *See—*
Shindelman, Jury Iosifovich; and Akulova, Galina Iosifovna, 3,683,227.

Alagy, Jacob; Bigache, Francois; and Cha, Bernard, to Institut Francais Du Petrole des Carburants et Lubrifiants. Process for manufacturing alcohols by oxidation of hydrocarbons. 3,683,035, Cl. 260-631.00b.

Alameda County, Sheriff of: *See—*
Lindberg, John E., Jr., 3,682,100.

Albrile, Walter, to Olivetti, Ing. C., & C., S.p.A. Friction clutch. 3,681,940, Cl. 64-30.00c.

Alderfer, Sterling W., to Industrial Heights, Inc. Pneumatic tire having helical reinforcing filaments. 3,682,222, Cl. 152-361.000.

Aldrich Chemical Company, Inc.: *See—*
Hopps, Harvey B.; Jackman, Dennis; and Biel, John H., 3,682,921.

Alexander, Ben H.: *See—*
Fischbein, Irwin W.; Alexander, Ben H.; and Sastri, Aiyaswami S., 3,682,795.

Alexander, William. System for measuring fluid flow. 3,681,983, Cl. 73-186.000.

Alfa Romeo S.p.A.: *See—*
Colucci, Ivo, 3,681,812.
Garcea, Giampaolo, 3,682,046.

Algeri, Harvey R.; and Sandorf, Robert E., to Nordson Corporation. Coating apparatus control with delay-duration timer having constant current charging circuit and bistable trigger circuit. 3,682,131, Cl. 118-2.000.

Alibert, Vernon F., to Columbia Research Laboratories, Inc. Heartbeat transducer for a monitoring device. 3,682,161, Cl. 128-2.05s.

Allais, Andre: *See—*
Rousseau, Genevieve; Allais, Andre; and Poittevin, Andre, 3,682,964.

Allard, Eusebe; Allard, Julien; and Allard, Roland. Lubricating apparatus for heavy machinery. 3,682,273, Cl. 184-27.00a.

Allard, Julien: *See—*
Allard, Eusebe; Allard, Julien; and Allard, Roland, 3,682,273.

Allard, Roland: *See—*
Allard, Eusebe; Allard, Julien; and Allard, Roland, 3,682,273.

Allegheny Ludlum Industries, Inc.: *See—*
Dupuis, Hubert, 3,681,830.

Allen, Paul V.; and McAllister, Edward W., to Gulf Refining Company. Composite pipeline sampler. 3,681,997, Cl. 73-422.0tc.

Alley, John H.: *See—*
Parker, Edward H.; Gould, William F.; and Alley, John H., 3,682,078.

Allied Chemical Corporation: *See—*
Kolyer, John M.; and Kveglis, Albert A., 3,683,048.

Allis-Chalmers Manufacturing Company: *See—*
Pouli, Dirk; and Larson, Theodore L., 3,682,709.

Allmanna Svenska Elektriska Aktiebolaget: *See—*
Ahrnholm, Par; Grune, Per-Olof; and Nygaard, Tore, 3,683,142.

Allport, Maurice James, to Lucas, Joseph, (Industries) Limited. Voltage regulators fur use in battery charging systems. 3,683,259, Cl. 320-68.000.

Alpert, Benjamin, to Childcraft Education Corporation. Construction toy and a block construction therefor. 3,681,870, Cl. 46-26.000.

Alton Box Board Company: *See—*
Le Blanc, John R., 3,682,762.

Aluminum Company of America: *See—*
Haddon, Roger C.; and Kilgore, Colin H., 3,682,122.

Amano, Takehiro: *See—*
Sota, Kaoru; Hayashi, Akifumi; and Amano, Takehiro, 3,683,005.

Amelung, Ernst; Belz, Edgar; and Evertz, Egon, to Evertz, Egon. Apparatus for cleaning iron moulds. 3,681,811, Cl. 15-165.000.

American Can Company: *See—*
Adams, James William; and Tilloson, August Henry, 3,682,856.

American Chain & Cable Company, Inc.: *See—*
Oliver, Robert P., 3,683,135.

American Cyanamid Company: *See—*
Brownlee, Thomas Harland; and Matsuda, Ken, 3,683,336.
Papaioannou, Christos George, 3,682,942.

American Plasti-Plate Corporation: *See—*
Dennis, Donald I., 3,682,085.

American Safety Equipment Corporation: *See—*
Kuszynski, Gregory G., 3,682,412.

American Technical Industries, Inc.: *See—*
Spiegel, Si, 3,682,421.

Ames, Richard H.; and Williams, Andrew W. Cranial drilling instrument. 3,682,177, Cl. 128-310.000.

Amicon Corporation: *See—*
Rigopulos, Peter N., 3,682,318.

Amos, Homer C.; and Strickland, Edward T. Article coated with a water-washable tacky elastomer. 3,682,690, Cl. 117-122.00p.

AMP Incorporated: *See—*
Vigeant, George Henry; and Kloth, James Albert, 3,683,319.

Ampex Corporation: *See—*
Zwetzig, Brian L.; and Coy, Don R., 3,682,486.

Amtron, Inc.: *See—*
Kasper, Frank S., 3,682,215.

Anderson, A. E., Construction Corporation: *See—*
Berczynski, Frank A., 3,682,456.

Anderson, Arthur F., to Trans-Wheel, Inc. Axial piston pump. 3,682,047, Cl. 91-505.000.

Anderson, Eric; and Spreadsborough, John. Aluminum-steel composite. 3,682,606, Cl. 29-196.200.

Anderson, Richard W.; and Frick, Hughie R., to Dow Chemical Company, The. Polyperfluorocyclobutadiene. 3,682,876, Cl. 260-91.500.

Anderson, Ronald W.: *See—*
Hines, Gordon E.; and Anderson, Ronald W., 3,681,967.

Anderson, Thomas A.: *See—*
Palmer, Peter J.; and Anderson, Thomas A., 3,682,698.

Ankeny, Jay H.; Foddy, Harold W.; and Kessler, Dayton F., to Debavan Manufacturing Company, Incorporated. Balanced hydraulic device. 3,682,044, Cl. 91-487.000.

Anker-Werke AG.: *See—*
Rethmeier, Gerhard, 3,682,377.

Aoki, Hiroshi: *See—*
Tanabe, Takashi; Aoki, Hiroshi; Murakami, Hitoshi; and Matsumoto, Fujio, 3,683,060.

Aoki, Hisashi: *See—*
Yoshioka, Yoshio; Imai, Kinichi; Aoki, Hisashi; and Toda, Jun, 3,682,887.

Apfel, Joseph H.; and Gelber, Robert M., to Optical Coating Laboratory, Inc. Infra-red interference filter. 3,682,528, Cl. 350-1.000.

Arai, Fumiaki; Ohta, Wasaburo; Kurokawa, Junki; Usui, Noriyuki; Shimizu, Sakae; and Tanaka, Testsuo, to Kabushiki Kaisha Ricoh. Copying material for use in electrophotography. 3,682,632, Cl. 96-1.800.

Arai, Sumio: *See—*
Ogata, Yuzuru; Arai, Sumio; and Iwasa, Ichiro, 3,682,803.

Arakawa, Osamu: *See—*
Nabae, Akira; Arii, Mitsuru; Arakawa, Osamu; and Sugiyama, Sadao, 3,683,138.

Arcella, Frank G.; and Brumm, Russell E., to Westinghouse Electric Corporation. Heat pipe wick fabrication. 3,681,843, Cl. 29-423.000.

Archer, Sydney; and Schulenberg, John W. Tetrahydroiso quinolinecarboxamides. 3,682,926, Cl. 260-287.000.

Arcilesi, Donald Allan: *See—*
Kardos, Otto; Arcilesi, Donald Allan; Tomson, Arthur James; and Valayil, Sylvester Paul, 3,682,788.

Argabright, Perry A.; and Presley, C. Travis. Selective plugging of more permeable zones. 3,682,245, Cl. 166-270.000.

Arii, Mitsuru: *See—*
Nabae, Akira; Arii, Mitsuru; Arakawa, Osamu; and Sugiyama, Sadao, 3,683,138.

Armbrust, Herbert: *See—*
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Arnhold, Rudolf: *See—*
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Arni, Urs: *See—*
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Art Metal -U.S. Corporation: *See—*
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Asaba, Mitsuo: *See—*
Kaku, Kanui; Asaba, Mitsuo; Gondo, Yasaka; Kachi, Atsuyuki; and Maisumoto, Satoshi, 3,683,049.

Asadorian, Arthur A.; and Broadworth, Max R., to Dow Chemical Company, The. Process for the preparation of methyl bromide using radiation. 3,682,805, Cl. 204-163.00r.

Asahi Kaisei Kogyo Kabushiki Kaisha: *See—*
Seko, Maomi; Yomiyama, Akira; Ogawa, Shinsaku; Tetsuya, Miyake; Ryozo, Komori; and Norito, Ogawa, 3,682,792.

Asahi Kasei Kogyo Kabushiki Kaisha: *See—*
Seko, Maomi; Yomiyama, Akira; Ogawa, Shinsaku; Miyake, Tetsuya; Isoya, Toshiro; and Nakagawa, Koji, 3,682,793.

Asahi Kasei Kogyo Kabushiki Kaisha: *See—*
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Asaki Kogaku Kogyo Kabushiki Kaisha: *See—*
Tokutomi, Seijiro, 3,682,056.

Asakura, Masami: *See—*
Fujii, Kenzo; Kanai, Kazumichi; Inoue, Shigeru; Matsuo, Kiyoshi; and Asakura, Masami, 3,683,057.

Asano, Choichi: *See—*
Sasaki, Ryoichi; and Asano, Choichi, 3,682,717.

Asbery, John Harrison. Gear change mechanism. 3,682,013, Cl. 74-335.000.

Ascanio, Ivan; Haney, Thomas A.; and Bruno, Gerald A. Technetium 99M colloidal composition. 3,683,066, Cl. 424-1.000.

Ashworth Bros., Inc.: *See—*
Roinestad, Gerald C., 3,682,294.

Associated Electrical Industries Limited: *See—*
Fawdrey, Cecil Arthur; Simms, John Robert; Kenworthy, Derek; Roxburgh, Albert; and Hobbs, David, 3,683,141.

Astrocon Corporation: *See—*
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Atomic Power Constructions Limited: *See—*
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Atsumi, Toshio: *See—*
Yamamoto, Hisao; Atsumi, Toshio; and Awata, Hiroshi, 3,682,914.

Atwell, William J.; and Cranston, Lawrence, to Uniroyal, Inc. Textile-reinforced all-polymeric hose. 3,682,201, Cl. 138-125.000.

Aufdereggen, Klaus; Arni, Urs; Faucci, Adriano; and Stocker, August, to Lonza Ltd. Process for the production of malonic acid dinitrile. 3,683,003, Cl. 260-465.80r.

Augustine, Robert J.: *See—*
Unger, John J.; Augustine, Robert J.; and Khaja, Farees U., 3,682,089.

Austin, Timothy K.; and Johnson, Fred J., to Container Corporation of America. Carton for tape cartridges. 3,682,297, Cl. 206-45.140.

Autobrzdy, narodni podnik: *See—*
Krejcir, Oldrich, 3,682,464.

Automotive Products Company Limited: *See—*
Packer, Mervyn B.; and Judge, Gordon W., 3,682,515.

Avisun Corporation: *See—*
Khelghatian, Habet M.; and Poppe, Wassily, 3,682,693.
Khelghatian, Habet M.; Poppe, Wassily; and West, Harry J., 3,682,695.

Awata, Hiroshi: *See—*
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Ayano, Hiroyoshi; Kibino, Yasuaki; Sato, Hiroyoshi; Ohta, Yukihiko; and Fukuhara, Minoru, to Matsushita Electric Works, Ltd. Compound for electric devices. 3,683,303, Cl. 336-96.000.

Ayerst McKenna & Harrison Limited: *See—*
Sestanj, Kazimir; and Chomedey, Laval, 3,682,963.

Aziz, Ahmad. Temperature control in fluid systems. 3,682,380, Cl. 236-34.500.

Babkina, Vera Jurievna: *See—*
Mitkevich, Eduard Mikhailovich; Korobanov, Vladimir Nikolaevich; Babkina, Vera Jurievna; Shakhova, Alexandra Filippovna; Mefodiev, Vladimir Nikolaevich; and Gaidash, Nikolai Ivanovich, 3,682,602.

Bach, Georges Gustav: *See—*
Weisenborn, Frank Lee; Dolfini, Joseph Edward; Bach, Georges Gustav; and Bernstein, Jack, 3,682,981.

Bacher, Rudolph John; and Nakayama, Takashi, to Du Pont de Nemours, E. I., and Company. Hermetic printed capacitor. 3,683,245, Cl. 317-261.000.

Bacso, Imre; and Coombs, Robert V. 17α-propadienyl-substituted steroids. 3,682,985, Cl. 260-397.400.

Bader, Horst, to Eckardt, J. C., AG. Pneumatic differential pressure amplifier. 3,682,199, Cl. 137-625.048.

Badische Anilin- & Soda-Fabrik Aktiengesellschaft: *See—*
Becke, Friedrich; and Hagen, Helmuth, 3,682,941.
Hiller, Heinrich; and Dimroth, Peter, 3,682,923.
Koenig, Karl-Heinz, 3,683,026.
Krauch, Carl Heinrich; and Hoffmann, Horst, 3,682,808.
Reif, Werner; Nuerrenbach, Axel; and Freyschlag, Herwig, 3,682,989.
Sturm, Hans Juergen; and Armbrust, Herbert, 3,682,913.
Sturm, Hans-Juergen; and Goerth, Helmut, 3,682,928.
Tartter, Arnold; Riedel, Guenter; and Nold, Eberhard, 3,682,979.

Badische Maschinenfabrik GmbH: *See—*
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Bagdal, Karl T.: *See—*
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Baglai, Vitaly Mikhailovich: *See—*
Paton, Boris Evgenievich; Medovar, Boris Izrailevich; Bondarenko, Oleg Petrovich; Latash, Jury Vadimovich; Baglai, Vitaly Mikhailovich; and Shirshov, Vladimir Grigorievich, 3,682,622.

Bagnatori, Giulio B.: *See—*
Vuillemeier, Ralph O.; and Bagnatori, Giulio B., 3,682,052.

Bailey, Keith A.; and Marlow, Jerry R., to General Motors Corporation. Transmission with flow controlled lockup clutch. 3,682,043, Cl. 91-412.000.

Bain, Thomas William, to Imperial Chemical Industries Limited. Reciprocatory fluid motor. 3,682,042, Cl. 91-3.000.

Baker, Clarence W. Pipe beveling machine. 3,682,455, Cl. 266-23.0nn.

Balaklo, Viktor Nikolaevich: *See—*
Solntsev Viktor Gavrilovich; Manuilov, Jury Grigorievich; Karataev, Gury Sergeevich; Podborsky, Leonid Ermolaevich; Mikhailov, Pavel Mikhailovich; Tsapsky, Alexandr Zakharovich; Milov, Vladimir Gennadievich; Saikonen, Evert Alexandrovich; Gubanov, Vadim Gergievich; Olkhovsky, Jury Fedorovich; Naret, Grigory Borisovich; Garbuzov, Zalman Eremeevich; Balaklo, Viktor Nikolaevich; Griffin, Evgeny Pavlovich; Smirnov, Alexandr Fedorovich; Mutushev, Gavrill Akhmetovich; Smirnov, Leonid Nikolaevich; Livshits, Lev Grgorievich; and Lamin, Vladimir Ivanovich, 3,681,863.

Balance Technology, Inc.: *See—*
Hines, Gordon E.; and Anderson, Ronald W., 3,681,967.

Baldwin, Walton Leon, to Dow Chemical Company, The. Phenothiazine stabilized vinyl ester resins. 3,683,045, Cl. 260-837.00r.

Baldwin, William C. Two-speed winch. 3,682,442, Cl. 254-150.000.

Ball, Lawrence E.: *See—*
Coffey, Gerald P.; Ball, Lawrence E.; and Duke, June T., 3,683,052.

Ballas, Joseph A.; and Penick, Robert A., to Texas Instruments, Incorporated. Process for generating representations of packages of logic elements utilizing a data processing machine. 3,683,416, Cl. 444-1.000.

Ballinger, Dale O., to Honeywell Inc. Recording medium responsive to force fields and apparatus for recording and reproducing signals on the medium. 3,683,382, Cl. 346-74.00m.

Ballo, James A.: *See—*
Shelstad, Richard J.; and Ballo, James A., 3,681,805.

Balmer, Thomas A.: *See—*
Le Blanc, George T.; Le Blanc, Clifford H.; Balmer, Thomas A.; and Hurst, Bobbie G., 3,681,788.

Bamberg, Paul: *See—*
Westmaier, Josef; and Bamberg, Paul, 3,682,006.

Ban, Itsuki. Tape player for playing a plurality of endless magnetic tape cartridges. 3,682,480, Cl. 274-4.00f.

Bancroft, Joseph, & Sons Co.: *See—*
Trifunovic, Alexander L.; and Kase, Charles R., Jr., 3,681,819.

Bangor Punta Operations, Inc.: *See—*
Tudury, Arthur F., 3,681,934.

Baran, Donald H., to United States Gypsum Company. Wall decorated with panels. 3,681,881, Cl. 52-29.000.

Baran, John S.; and Laos, Ivar, to Searle, G. D., & Co. 17α-Alkanoyloxy-11β-methyl-19-norpregna-4, 6-diene-3,20-diones and the 6α-chloro-19-norpregn-4-ene-3, 20-diones corresponding. 3,682,986, Cl. 260-397.450.

Barbehenn, Herbert Stephen; Irizarry, James Michael; and Leszyk, Gerald Martin, to Eastman Kodak Company. Photographic paper with polyolefin coating. 3,682,639, Cl. 96-85.000.

Barden, Allan D., to Rowe International Inc. Refrigeration system for cold drink machines. 3,681,937, Cl. 62-340.000.

Barie, Walter P., Jr.; Franke, Norman W.; and Singerman, Gary M., to Gulf Research & Development Company. Liquid stabilizers for vinyl chloride resins. 3,682,853, Cl. 260-23.0xa.

Barkas, Emanuel, to Mite Corporation. Portable attendance recorder. 3,683,409, Cl. 346-91.000.

Barker, Fred Vester. Animal trap. 3,681,869, Cl. 43-66.000.

Barmag Barmer Maschinenfabrik Aktiengesellschaf: *See—*
Busch, Hans Jochen, 3,682,404.

Barnes, James A.; and Bjornholt, John E., to Motorola, Inc. Solid state display of range and azimuth information. 3,683,373, Cl. 343-5.0dp.

Barrett, Charles E.; and Jacobson, David R., to Dresser Industries, Inc. Temperature sensing assembly. 3,681,990, Cl. 73-343.00r.

Barrett, Robert E.: *See—*
Meredith, Curtis L.; Barrett, Robert E.; and Bishop, William A., 3,683,050.

Barrier, Alvis L. Artificial plant holder. 3,682,347, Cl. 220-160.000.

Barthel, Karl. Gripper bridge for transfer cylinder in rotary printing press having a sheet registering correcting devices. 3,682,472, Cl. 271-53.000.

Bartholme, Louis G.: *See—*
Vissers, Donald R.; Holmes, John T.; Nelson, Paul A.; and Bartholme, Louis G., 3,683,272.

Bartley, Thomas S.: *See—*
Lee, Charles Allen; Furbeck, Warren R.; Bartley, Thomas S.; and Beaty, Jeremy, 3,682,761.

Bassist, Rudolph G., 1/2% to Travis Mills Corporation. Apparatus for feeding and tensioning filling threads to a warp knitting machine. 3,681,942, Cl. 66-84.000.

Bata Shoe Company, Inc.: *See—*
Hujik, Ladislav, 3,682,579.

Baton, Hubert Lucien Louis: *See—*
Girard, Rene Fernand Victor; and Baton, Hubert Lucien Louis, 3,682,604.

Batzer, Hans; Nikles, Erwin; Ernst, Otto; and Porret, Daniel, to Ciba-Geigy AG. Epoxidized hydroaromatic acetals. 3,682,969, Cl. 260-338.000.

Bauer, Johann; and Sabel, Alex, to Wacker-Chemie GmbH. Process for the production of polymerizates of vinyl chloride. 3,682,874, Cl. 260-87.50c.

Bauer, Robert F.; McNeill, Robert C.; and Ledbetter, Jerry T., to Shell Oil Company. Underwater wells. 3,682,243, Cl. 166-.600.

Baugh, John C.; Koenig, John E.; and Mc Cuskey, James R., to Van Dorn Company. Easy opening rectangular metal container. 3,682,350, Cl. 220-54.000.

Baugh, William A., to Ethyl Development Corporation. Threaded container closure. 3,682,345, Cl. 215-43.00r.

Baumann, Bernard: *See—*
Cospen, Jean; and Baumann, Bernard, 3,682,349.

Baur Elektrouk GmbH, Firma: *See—*
Baur, Heinz, 3,683,232.

Baur, Heinz, to Baur Elektrouk GmbH, Firma. Sparkplug cap. 3,683,232, Cl. 315-58.000.

Bauren, Karl Lennart Emanuel: *See—*
Wilton, Inga Elna Maria; and Bauren, Karl Lennart Emanuel, 3,682,656.

Bausch & Lomb Incorporated: *See—*
Parnell, James A., 3,683,402.

Baxter Laboratories, Inc.: *See—*
Dali, Carmelo P.; and Szempruch, Walter T., 3,682,171.
Fekete, Lajos F.; and Shanbrom, Edward, 3,682,881.
Louderback, Allan L., 3,682,835.
Regan, Bernard M.; and Longstreet, John C., 3,683,092.

Beaman, Alden Gamaliel; and Miller, O. Neal, to Hoffmann-La Roche Inc. 2-chloro-6-hydroxynicotinic acid. 3,682,932, Cl. 260-295.50r.

Beatty, Ronald L.: *See—*
Beutler, Hans; and Beatty, Ronald L., 3,682,759.

Beaty, Jeremy: *See—*
Lee, Charles Allen; Furbeck, Warren R.; Bartley, Thomas S.; and Beaty, Jeremy, 3,682,761.

Beck, David F.: *See—*
Breton, Roger J.; and Beck, David F., 3,682,092.

Becke, Friedrich; and Hagen, Helmuth, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. Production of 1,2-benzoisothiazoles. 3,682,941, Cl. 260-304.000.

Becke, Friedrich B., to Badische Maschinenfabrik GmbH. Automatic molding plant with vertically spared conveying paths. 3,682,236, Cl. 164-324.000.

Beckers, Norman L., to Diamond Shamrock Corporation. Stabilization of chlorinated hydrocarbons. 3,682,830, Cl. 252-171.000.

Beckman Instruments, Inc.: *See—*
Fowler, Leslie E., 3,683,410.

Beecham Group Limited: *See—*
Hardy, Kenneth David, 3,682,896.

Beeken, Michael J.: *See—*
Jenkins, Victor F.; Newton, Geoffrey P.; and Beeken, Michael J., 3,682,865.

Beer, Heinz, to Siemens Aktiengesellschaft. Grounding switch for metal-clad high-voltage switching installations. 3,683,134, Cl. 200-48.00r.

Begley, Richard T.; and Godshall, John L., to Westinghouse Electric Corporation. Niobium-base alloys. 3,682,626, Cl. 75-174.000.

Behr, Michael I.; and Smith, Robert A., to Burroughs Corporation. Method and apparatus for measuring fluid film bearings. 3,683,273, Cl. 324-34.00r.

Bel, Jean-Pierre. Quick-release inflatable envelope for life jackets and the like. 3,681,801, Cl. 9-342.000.

Bell & Howell Company: *See—*
Duck, Sherman W., 3,683,405.
Hodder, Wayne K.; and Browder, Lewis B., 3,683,131.

Bell Telephone Laboratories, Incorporated: *See—*
Gummel, Hermann Karl, 3,683,417.
Martin, Robert Lanham, 3,683,418.
Smith, Phillip Hagar, 3,683,394.

Beloit Corporation: *See—*
Pfeiffer, John D., 3,682,032.

Beltran, Humberto Flores, to Searle, G. D., & Co. Process for extraction of solanum alkaloids. 3,682,883, Cl. 260-210.00r.

Belz, Edgar: *See—*
Amelung, Ernst; Belz, Edgar; and Evertz, Egon, 3,681,811.

Benda, Ekkehardt: *See—*

Plasser, Franz; and Benda, Ekkehardt, 3,682,101.

Bender, Werner K.: *See—*
Oxberry, John W.; Bender, Werner K.; and Policht, Stanislaw A., 3,682,540.

Bennahmias, Daniel; Locklin, Harry Paul; and Locklin, Paul Gordon, to Hercules Incorporated. Synthesis and dispersion of resin particles in a continuous phase low molecular weight oxidized polyethylene binder. 3,682,854, Cl. 260-29.10r.

Bennett, Allan I., to Westinghouse Electric Corporation. Solar cell. 3,682,708, Cl. 136-89.000.

Bennett, Howard W., to Armco Steel Corporation. Method of melting steel. 3,682,711, Cl. 148-2.000.

Bennett, John Charles, to Atomic Power Constructions Limited. Emergency nuclear reactor shutdown systems. 3,682,771, Cl. 176-35.000.

Bennett, Kenneth V. Airline oiler. 3,682,274, Cl. 184-55.00a.

Bennett, Tarquin C. Bun warmer and steamer and hot dog cooker. 3,682,664, Cl. 99-339.000.

Bent, Keith Joseph; and Cox, John Michael, to Imperial Chemical Industries Limited. Metal complexes. 3,682,971, Cl. 260-343.20r.

Benz, Mark G.: *See—*
Martin, Donald L.; and Benz, Mark G., 3,682,716.

Berczynski, Frank A., to Anderson, A. E., Construction Corporation. Metallurgical furnace with cartridge clay gun means. 3,682,456, Cl. 266-24.000.

Beregi, Laszlo; Hugon, Pierre; Le Douarec, Jean-Claude; and Duhault, Jacques, to Phenyl propylamino alkanols and their esters and Societe Francaise de Recherchie Medical. . 3,683,008, Cl. 127/083/3/9/025.

Beregi, Laszlo; Hugon, Pierre; Le Douarec, Jean-Claude; and Duhault, Jacques, to Societe en Nom Collectif Science Union et Cie, Societe Francaise de Recherche Medicale. Phenyl propylamino alkanols and their esters. 3,683,088, Cl. 260-477.000.

Berenbaum, Arthur; and West, William A., to Philco-Ford Corporation. Means for indicating the position of a switch. 3,683,145, Cl. 200-167.00r.

Berg, John R.: *See—*
Newman, Donald J.; Williams, Donald J.; and Berg, John R., 3,682,684.

Berg Manufacturing Company, The: *See—*
Klimek, Boleslaw, 3,682,438.

Bergamini, Giorgio. Force-balance pneumatic regulator with resilient cross fulcrum, having high sensibility and precision and easy, continuous gain regulation. 3,682,048, Cl. 92-37.000.

Berger, Milton: *See—*
Yovanovicb, Joseph T., 3,682,816.

Bergquist, Nils R.; and Skoldenfelt, Sven H. Test glass holder. 3,682,323, Cl. 211-74.000.

Bergwerk, Walter, to Imperial Chemical Industries Limited. Drawing synthetic thermoplastic yarn. 3,681,826, Cl. 28-59.500.

Berkey Photo, Inc.: *See—*
Oxberry, John W.; Bender, Werner K.; and Policht, Stanislaw A., 3,682,540.

Berkley & Company, Inc.: *See—*
Dumbauld, Richard, 3,682,411.

Berkman, Stephen A. Mechanical transfer teaching system with universal mountings. 3,681,858, Cl. 35-13.000.

Bernstein, Carl: *See—*
Longley, Kermit D.; and Bernstein, Carl, 3,682,845.

Bernstein, Jack: *See—*
Weisenborn, Frank Lee; Dolfini, Joseph Edward; Bach, Georges Gustav; and Bernstein, Jack, 3,682,981.

Bernutat, Paul. Air separator. 3,682,302, Cl. 209-139.00r.

Bertolini, Natale: *See—*
Ghirga, Marcello; Bertolini, Natale; and Di Fiore, Lucio, 3,683,043.

Bethlehem Steel Corporation: *See—*
Bradley, Thomas E.; and Spadt, Walter, Jr., 3,682,551.
Humphries, Darral V., 3,681,911.

Bettiga, Albert C.: *See—*
Moradzadeh, Yaqub; and Bettiga, Albert C., 3,682,678.

Bettinger, James H., to United Fabricating Company, Inc. Raised floor panel and assembly. 3,681,882, Cl. 52-126.000.

Beumer, Peter: *See—*
Zirngibl, Hans; Jaschiski, Klemens; Brandle, Karl; Beumer, Peter; and Weidmann, Walter, 3,681,895.

Beutler, Hans; and Beatty, Ronald L., to Union Carbide Corporation. Low density pyrolytic carbon coating process. 3,682,759, Cl. 117-46.0cg.

Beydler, William W.: *See—*
Cricchi, James R.; and Beydler, William W., 3,683,335.

Beyer, Frank R., to North American Rockwell Corporation. Core clamping system for a nuclear reactor. 3,682,774, Cl. 176-87.000.

Bicik, Bladislav: *See—*
Kaspar, Jan; and Bicik, Bladislav, 3,682,399.

Bickel, Hans; Bosshardt, Rolf; Fechtig, Bruno; Hueller, Johannes; and Peter, Heinrich, to Ciba-Geigy Corporation. Cephalosporanic acid derivatives and process for their manufacture. 3,682,903, Cl. 260-243.00c.

Bidegain, Georges Clement, to Bidegain S.A. Shoes, especially for children. 3,681,860, Cl. 36-2.50e.

Bidegain S.A.: *See—*
Bidegain, Georges Clement, 3,681,860.

Biel, John H.: *See—*
Hopps, Harvey B.; Jackman, Dennis; and Biel, John H., 3,682,921.

Bigache, Francois: *See—*
Alagy, Jacob; Bigache, Francois; and Cha, Bernard, 3,683,035.

Biland, Hans-Rudolf: *See—*
Luethi, Christian; Biland, Hans-Rudolf; and Duennenberger, Max, 3,683,020.

Billings, William W.; and Calfee, Wendell, to Westinghouse Electric Corporation. Over and under excitation protection circuit for alternating current power systems. 3,683,199, Cl. 307-87.000.

Bilodeau, Thomas J. Theftproof frame assembly. 3,681,867, Cl. 40-152.100.

Biloxi, Joe C. May; and Lowery, James D., Jr. Multipurpose trailer. 3,682,337, Cl. 214-152.000.

Bingham, Ronald H.; and Canavan, Edmond J., to Northrop Corporation. Electron beam line scanner with zig zag control electrodes. 3,683,230, Cl. 315-12.000.

Bio-Cal Instrument Company: *See—*
Marx, Gunter H., 3,682,817.

Bird, Michael J., to Western Boring Equipment Co. Tunnel Boring Machine. 3,682,261, Cl. 175-122.000.

Birton Klima- Og Koleteknik I/S: *See—*
Johansen, Birger Johan Walther, 3,682,141.

Bishop, Kenneth M. Swimming pool water circulation system. 3,682,311, Cl. 210-169.000.

Bishop, William A.: *See—*
Meredith, Curtis L.; Barrett, Robert E.; and Bishop, William A., 3,683,050.

Bixler, Kenneth D.: *See—*
Reifers, Richard F.; and Bixler, Kenneth D., 3,682,365.

Bjornholt, John E.: *See—*
Barnes, James A.; and Bjornholt, John E., 3,683,373.

Blakeslee, Daniel Leo, to Stacor Visionaire Corporation. Automatic fastening machine. 3,681,842, Cl. 29-430.000.

Blanchard, Robert R.; and Young, Warren L. Readily processable, rigid vinyl chloride polymer compositions containing chlorinated olefin polymer wax. 3,682,924, Cl. 260-28.50d.

Blankenship, James C., to Goodrich, B. F., Company, The. V-belt and method of making same. 3,682,012, Cl. 74-231.00r.

Blatter, Max. Apparatus for reconditioning liquids contaminated with microorganisms. 3,682,314, Cl. 210-199.000.

Blattner, Hans; and Schindler, Walter. Benzothiepino [4,5-c] pyrroles. 3,682,959, Cl. 260-326.900.

Bleh, Otto: *See—*
Keddeinis, Heinrich; Lenz, Arnold; Bleh, Otto; and Termin, Erich, 3,682,828.

Blevins, Raymond H., to Carter Blevins Detasslers, Inc. Hybrid seed detasseler. 3,681,900, Cl. 56-63.000.

Bleyle, Merrill, to Grace, W. R., & Co. Scale prevention agents of methacrylic acid-vinyl sulfonate copolymers for saline water evaporation. 3,682,224, Cl. 159-47.00r.

Blezat, Jean; and Dumont, Daniel. Process for canning fruits. 3,682,662, Cl. 99-186.000.

Bliss and Laughlin Industries, Incorporated: *See—*
Ciepley, Ted, 3,681,807.
Ciepley, Ted, 3,681,813.

Bloch, Herman S., to Universal Oil Products Company. Multicomponent dehydrogenation catalyst. 3,682,838, Cl. 252-464.000.

Blomberg, Peter Erik; and Enger, Lars Sivert, to Aktiebolaget Electrolux. Absorption refrigeration apparatus of the inert gas type. 3,681,938, Cl. 62-490.000.

Bloom, Stanley L., to Peerless Industries, Incorporated. Pipe joint. 3,682,503, Cl. 285-345.000.

Blower, Warren A.; Janke, Gilbert J.; and Abraham, Edward D., to Sherwin-Williams Company, The. Rotatable cantilevered shell molding machine. 3,682,230, Cl. 164-165.000.

Blu-Ray, Incorporated: *See—*
McPherson, Patrick F., 3,683,310.

Boardman, Kerin G.: *See—*
Taylor, Ronald B.; and Boardman, Kerin G., 3,682,859.

Bodine, Albert G. Apparatus for crushing and separating ore material. 3,682,397, Cl. 241-46.00r.

Bodine, Albert G. Sonic method and apparatus for processing slurried for transportation. 3,682,511, Cl. 302-14.000.

Bodway, George E. Method for manufacturing thin film circuits. 3,681,827, Cl. 29-25.420.

Boehmke, Gunther; Hees, Walter; and Quaedvlieg, Mathieu, to Farbenfabriken Bayer Aktiengesellschaft. Pad dyeing polyester textile with polyacrylic acid hydroxyalkyl ester and alkoxylated mannich. 3,682,584, Cl. 8-172.000.

Boehringer Ingelheim GmbH: *See—*
Weber, Karl-Heinz; Zeile, Karl; Giesemann, Rolf; and Danneberg, Peter B., 3,683,348.

Boehringer Mannheim GmbH: *See—*
Winter, Werner; Thiel, Max; Stach, Kurt; Schaumann, Wolfgang; Dietmann, Karl; and Ritter, Klaus, 3,683,023.

Boenig, Robert W. Sectional forms for concrete. 3,682,434, Cl. 249-48.000.

Boesten, Wilhelmus H. J.; and Suverkropp, Geertrudes H., to Stamicarbon N.V. Optical separation of methionine nitrile. 3,683,002, Cl. 260-465.500.

Bohac, Johann Armin Josef, to AGA Aktiebolag. Quick release coupling device for cutting or welding torches. 3,682,454, Cl. 266-23.00t.

Bohannon, Ralph O., Jr., to Texas Instruments, Incorporated. Process for fabricating integrated circuit having matched complementary transistors. 3,682,724, Cl. 148-175.000.

Boley, Robert D.; Meyer, Charles F.; Kiessling, Rudolf H.; and Paape, Kenneth L., to Square D Company. Electromagnetically operated solid state timing device. 3,683,301, Cl. 335-59.000.

Bom, Cornelis Johannes Gerardus: *See—*
Van Der Lely, Ary; and Bom, Cornelis Johannes Gerardus, 3,682,395.

Bondarenko, Oleg Petrovich: *See—*
Paton, Boris Evgenievich; Medovar, Boris Izrailevich; Bondarenko, Oleg Petrovich; Latash, Jury Vadimovich; Baglai, Vitaly Mikhailovich; and Shirshov, Vladimir Grigorievich, 3,682,622.

Bonnamy, Jean Marc: *See—*
Duc, Xuong Nguyen; and Bonnamy, Jean Marc, 3,681,927.

Bonneric, Francis, to Service d'Exploitation Industrielle des Tabacs et des Allumettes. Process for regulating initial doses for the making up of doses in two stages. 3,682,263, Cl. 177-1.000.

Bonzack, Eugene P.: *See—*
Olds, Richard G.; and Bonzack, Eugene P., 3,683,238.

Boone, Salomon: *See—*
Roos, Jan; and Boone, Salomon, 3,683,129.

Borg-Warner Corporation: *See—*
Kimball, Jack E., 3,682,748.

Borghi, Italo: *See—*
Dall'Asta, Gino; Carbonaro, Antonio; Borghi, Italo; and Greco, Alberto, 3,682,870.

Borst, Henry V. Method for temporarily correcting rods. 3,682,383, Cl. 238-171.000.

Bosshard, Hans Heinrich; Leifels, Klaus-Dieter; and Seyberlich, Bernd, to Ciba-Geigy AG. Pressure-sensitive copying material. 3,682,682, Cl. 117-36.700.

Bosshardt, Rolf: *See—*
Bickel, Hans; Bosshardt, Rolf; Fechtig, Bruno; Hueller, Johannes; and Peter, Heinrich, 3,682,903.

Bott, Edward. Complaint bath and rinse receptacle. 3,681,789, Cl. 4-177.000.

Bourquin, Jean-Pierre; Schwarb, Gustav; and Waldvogel, Erwin. 4(1-Alkyl-4-piperidylidine)-4H-benzo[4,5] cyclohepta [1,2-6] thiophenones. 3,682,930, Cl. 260-293.570.

Bouyt, Roger Jean, to Centre de Recherches de Pont-A-Mousson. System for pouring into foundry moulds. 3,682,232, Cl. 164-326.000.

Bowen, John W.; and Perkins, Donald D., to Columbus Electric Manufacturing Co. Non-snap-acting switch devices with S-shaped contact spring blade. 3,683,144, Cl. 200-166.00j.

Bowers, Brian Alfred: *See—*
McIntosh, Ian Arthur; Bowers, Norman John; Bowers, Brian Alfred; and Miles, Bruce Robert, 3,682,253.

Bowers, Norman John: *See—*
McIntosh, Ian Arthur; Bowers, Norman John; Bowers, Brian Alfred; and Miles, Bruce Robert, 3,682,253.

Bowles Engineering Corporation: *See—*
Bowles, Ronald E., 3,683,166.

Bowles, Ronald E., to Bowles Engineering Corporation. Fluidic systems having adaptive gain dependent upon input signal parameters. 3,683,166, Cl. 235-200.000.

Bowman, Ronald W.; and Hall, Alvin Lee, to Shell Oil Company. Control of a steam zone. 3,682,244, Cl. 166-252.000.

Boyce, Kenneth D.: *See—*
Welch, Robert H.; and Boyce, Kenneth D., 3,683,159.

Boychem Corporation, mesne: *See—*
Emerson, Carl D.; and Aichenegg, Paul C., 3,683,000.

Boyd, Joseph Emmett. Scaffolding. 3,682,271, Cl. 182-152.000.

Boyko, Eugene S.; and Campbell, Joseph. Fabrication of nuclear fuel assemblies and resultant product. 3,683,148, Cl. 219-137.000.

Braden, Rudolf: *See—*
Findeisen, Kurt; Braden, Rudolf; and Holtschmidt, Hans, 3,682,916.

Bradley, Thomas E.; and Spadt, Walter, Jr., to Bethlehem Steel Corporation. Contact printing apparatus. 3,682,551, Cl. 355-120.000.

Braid, Milton; and Law, Derek A., to Mobil Oil Corporation. Aminobenzoquinones and aminonaphthoquinones as additives for imparting oxidative stability to organic compositions. 3,682,980, Cl. 260-396.00r.

Braid, Milton, to Mobil Oil Corporation. Compositions stabilized with an aryloxy (alkyloxy) alkane. 3,683,032, Cl. 260-613.00r.

Brandle, Karl: *See—*
Zirngibl, Hans; Jaschiski, Klemens; Brandle, Karl; Beumer, Peter; and Weidmann, Walter, 3,681,895.

Brandt, Harry; and Traedway, Barney R. Method for making a prepacked sand control line for use in oil wells. 3,683,056, Cl. 264-112.000.

Bredeson, Dean K., to French Oil Mill Machinery Company, The. Rendering cooker. 3,682,091, Cl. 99-348.000.

Bredeweg, Corwin J.: *See—*
Hickner, Richard A.; Bredeweg, Corwin J.; and Plepys, Raymond A., 3,682,965.

Bredtschneider, Walter, to Siemens Aktiengesellschaft. Steam generator for power plants heated by nuclear energy. 3,682,772, Cl. 176-54.000.

Breitfuss, Thomas K., to Hydro Conduit Corporation. Load lifting and transport vehicle. 3,682,334, Cl. 214-75.00g.

Breton, Roger J.; and Beck, David F., to Roto Manufacturing Company, Inc. Apparatus for coring and pressing juice from fruits having a rind. 3,682,092, Cl. 100-52.000.

Breveteam SA: *See—*
Tesch, Gunter Horst; and Colijn, Johannes J. V., 3,682,739.

Brewer, William B., to Weir Magic Pit Corporation. Method of manufacturing wood-siding panels. 3,682,212, Cl. 144-318.000.

Briles, Franklin S. Re-usable, spin-stopping fastener. 3,682,508, Cl. 287-189.36f.

Brimberg, Torsten. Rod coupler with sheath. 3,682,504, Cl. 287-49.000.

British Railways Board: *See—*
Pocklington, Arthur Ronald; and Mahy, Geoffrey Richard, 3,682,102.

Britton, Arthur Wray; Luckey, George Wilson; William, Glenn; and Snyder, John Douglas, to Du Pont de Nemours, E. I., and Company. Ethylene copolymer blend for liquid packaging film. 3,682,767, Cl. 161-227.000.

Brizzolara, Donald F.; and Quarles, Richard W., Jr., to Du Pont de Nemours, E. I., and Company. Perfluoro (3-phenoxypropyl vinyl ether) monomer and copolymers made therefrom. 3,682,872, Cl. 260-80.760.

Broadworth, Max R.: *See—*
Asadorian, Arthur A.; and Broadworth, Max R., 3,682,805.

Brooks, Joseph F.; and Schaefer, Harold W., to National Union Electric Corporation. Pulley construction. 3,682,010, Cl. 74-230.010.

Brooks, Warren B.; Dean, James T.; Manning, William F.; Rupp, Lewis A.; and Talley, William A., Jr., to Mobil Oil Corporation. Underwater production and storage system. 3,682,242, Cl. 166-.500.

Brouard, Dominique. Apparatus and method for forming a sound hologram. 3,683,323, Cl. 340-3.00r.

Brouwer, Jan Nicolaas; Henning, Gerardus Johannes; and Van Der Wel, Hendrik, to Lever Brothers Company. Protein flavouring agents prepared from synsepalum dulcifium. 3,682,880, Cl. 260-112.00r.

Browatzki, Kurt: *See—*
Herzhoff, Peter; Gref, Hans; Maus, Fritz; Wasser, Willi; Browatzki, Kurt; Friedsam, Josef; and Schweicher, Wolfgang, 3,682,679.

Browder, Lewis B.: *See—*
Hodder, Wayne K.; and Browder, Lewis B., 3,683,131.

Browder, Timothy J., Jr., to Parsons, Ralph M., Company, The. Method of manufacture of sulfur dioxide from sulfurous materials containing nitrogen compounds. 3,682,593, Cl. 23-177.000.

Brown, Alfred Winsor: *See—*
Marzocchi, Alfred; and Brown, Alfred Winsor, 3,682,221.

Brown, Boveri & Cie A.G.: *See—*
Gross, Franz; and Krapf Rudolf, 3,683,209.

Brown, Harvey A.; and Jones, Robert B., to Minnesota Mining and Manufacturing Company. Imaging apparatus and method. 3,682,549, Cl. 355-132.000.

Brown International Corporation: *See—*
Rickard, Donn J.; Rohm, Robert F.; and Holbrook, Franklin K., 3,682,207.

Brown, Joseph P., to Monsanto Chemicals Limited. Certain 3-methylene diaxyphenyl-rhodanines. 3,682,944, Cl. 260-306.700.

Brown, Peter William, to Girling Limited. Disc brakes and mounting structure therefor. 3,682,277, Cl. 188-73.300.

Brown, Sharon D.; D'Ottavio, Eugene D.; Kuzmik, John J.; and Grunwald, John J., to MacDermid, Incorporated. Method of treating plastic substrates and process for plating thereon. 3,682,786, Cl. 204-30.000.

Brown, William E., Jr.; and Dufton, William C., to Frick Company. Vertical drop trimmer saws. 3,682,209, Cl. 143-41.00c.

Brownlee, Thomas Harland; and Matsuda, Ken, to American Cyanamid Company. Formation of visible and/or fluorescent images. 3,683,336, Cl. 340-173.000.

Bruchmann, Hans-Dieter: *See—*
Zucker, Friedrich Josef; and Bruchmann, Hans-Dieter, 3,682,447.

Brumm, Russell E.: *See—*
Arcella, Frank G.; and Brumm, Russell E., 3,681,843.

Brunett, Carl J.; and Payne, Donald C., to Picker Corporation, mesne. Scintillation recording device for producing both black and white and multi-color photographic records. 3,683,184, Cl. 250-71.50s.

Bruno, Gerald A.: *See—*
Ascanio, Ivan; Haney, Thomas A.; and Bruno, Gerald A., 3,683,066.

Bruyere, Marcel: *See—*
Francois, Martin; Bruyere, Marcel; and Chatelet, Henri, 3,682,506.

Bryans, David F.: *See—*
Eckman, Raymond L.; and Bryans, David F., 3,682,381.

Bucham Group Limited: *See—*
Mamalis, Patrick; and Outred, Dennis James, 3,682,912.

Buchel, Karl Heinz; Grewe, Ferdinand; and Kaspers, Helmut, to Farbenfarbriken Bayer Aktiengesellschaft. 1-Trityl-1,2,4-triazoles. 3,682,950, Cl. 260-308.00r.

Buchele, Wesley F.: *See—*
Quick, Graeme R.; and Buchele, Wesley F., 3,681,901.

Buchler, Joseph. Decanting and filling apparatus. 3,682,305, Cl. 210-83.000.

Buck, Thomas M. Method and apparatus for dephasing and entangling crimp yarn. 3,681,821, Cl. 28-1.300.

Buckeye Ribbon & Carbon Company: *See—*
Virnelson, Robert Craig, 3,682,848.

Buhayar, Eric S.; Hazard, James E.; Jaagus, John J.; Werner, Fred W.; Wheeler, Robert W.; and Crowe, Robert C. Apparatus for printing container side walls. 3,682,296, Cl. 198-210.000.

Buhrmann, Wayne H.; and Fix, Sidney R., to Goodyear Tire & Rubber Company, The. Reinforced hose. 3,682,202, Cl. 138-126.000.

Bultfabriks Aktiebolaget: *See*—
Lejdegard, Sixten H., 3,682,038.

Bulthuis, Kornelis; and Shannon, John Martin, to U.S. Philips Corporation. Temperature compensated semiconductor resistor containing neutral inactive impurities. 3,683,306, Cl. 338-7.000.

Bunker Hill Company, The: *See*—
Moore, Raymond H., 3,682,589.

Bunker-Ramo Corporation, The: *See*—
Elkins, Luejene, 3,683,314.
Kehl, Lawrence Joseph; Triner, Irvin Richard; and Janis, Robert Gerald, 3,683,150.
Woods, Gerald F.; and Weaver, Robert, 3,683,320.

Buran, Vojtech; Kuba, Jaromir; Uncovsky, Adolf; and Zouhar, Karel, to Vyzkumny a vyvojovy ustov zavodu vseobecneho. Apparatus for determining the direction of flow of an ionizable fluid. 3,683,178, Cl. 250-43.5fc.

Burcin, Robert J.; Johnson, Orville L.; and Mouton Rene P., to Foster Wheeler Corporation. Flexible coupling. 3,682,501, Cl. 285-114.000.

Burdeska, Kurt: *See*—
Pugin, Andre; Burdeska, Kurt; and Model, Ernst, 3,682,966.

Burdett, Henry Sidney; and Harris, Ronald, to Stibbe Machinery Limited. Yarn feeding arrangements for circular knitting machines. 3,681,941, Cl. 66-19.000.

Burens, James H., to North Electric Company. Power supply circuit arrangement utilizing regenerative current feedback. 3,683,208, Cl. 307-296.000.

Burger, William H., to Kimberly-Clark Corporation. Method and apparatus for bias crosslaying a fiber web. 3,682,734, Cl. 156-166.000.

Burgermeister, Ulrich; Gaggini, Carlo; and Wurmli, Arthur, to Rieter Machine Works Ltd. Method and apparatus for doffing full bobbins and donning tubes on ring spinning and ring twisting machines. 3,681,906, Cl. 57-52.000.

Burklund, Wayne E.; and De Alva, Paul C., to Lear Siegler, Inc. Engagement of altitude hold mode in aircraft flight control system. 3,682,417, Cl. 244-77.00d.

Burrough Corporation: *See*—
Caras, Bernard, 3,683,222.

Burroughs Corporation: *See*—
Behr, Michael I.; and Smith, Robert A., 3,683,273.
Glaser, David, 3,682,544.
Holz, George E.; and Ogle, James A., 3,683,364.
Holz, George E., 3,683,371.

Burroughs Wellcome & Co., (U.S.A.) Inc.: *See*—
Cresswell, Ronald M.; Mentha, John W.; and Seaman, Russell, 3,682,957.

Burtis, Stokes Fenimore: *See*—
Ryan, Robert James; Burtis, Stokes Fenimore; and Grogan, John Thomas, 3,682,784.

Busch, Hans Jochen, to Barmag Barmer Maschinenfabrik Aktiengesellschaf. Multi-spooling machine with interchangeable units. 3,682,404, Cl. 242-35.50r.

Bush, Robert E.: *See*—
Degelleke, Gerrit; and Bush, Robert E., 3,682,031.

Busian, Vincent V., to General Electric Company. Dynamoelectric machine and method and apparatus for use in manufacturing same. 3,681,836, Cl. 29-205.00d.

Busse, Oswald; and Klesper, Hugo, to Passavant-Werke. Clarifying apparatus. 3,682,322, Cl. 210-530.000.

Butler, Fred C.; Johnson, Nathaniel M.; and Wallace, Clifford G., to Pacific Instruments Company. Sensor for ground fault interrupter apparatus. 3,683,302, Cl. 336-83.000.

Butler, Gordon C.: *See*—
Roth, Charles F., Jr.; and Butler, Gordon C., 3,682,137.

Butler, Marlow D., to Tektronix, Inc. Orange-reflective graticule scale for cathode ray tube. 3,683,225, Cl. 313-92.0sc.

Byrd, Commodore B.: *See*—
Landers, Adrian L.; and Byrd, Commodore B., 3,682,210.

Cade, Ronald L.; and Volkers, Stewart W., to Xerox Corporation. Xerographic pick-off plate. 3,682,538, Cl. 355-3.000.

Calfee, Wendell: *See*—
Billings, William W.; and Calfee, Wendell, 3,683,199.

California Portland Cement Company: *See*—
Powell, Arthur C., 3,682,453.

Callaghan, John D., to RCA Corporation. Antenna system for television reception within both the JHF and VHF television band of frequencies. 3,683,391, Cl. 343-802.000.

Cambridge Thermionic Corporation: *See*—
Walup, William B., 3,683,317.

Cameo, Inc.: *See*—
Lauster, Frederick L., 3,683,065.

Campbell, James R. Jumping stick horse. 3,682,474, Cl. 272-1.00d.

Campbell, Joseph: *See*—
Boyko, Eugene S.; and Campbell, Joseph, 3,683,148.

Campbell, Thomas Colin, to Research Corporation. Detoxification of gossypol by eumycophyta. 3,682,645, Cl. 99-9.000.

Campton, Joseph M.; and Hammerslag, Julius G., to Sensitron, Inc. Disposable clinical thermometer. 3,681,993, Cl. 73-362.0ar.

Camras, Marvin, to IIT Research Institute. Longitudinal scan magnetic recording and reproducing system for color television signals. 3,683,107, Cl. 178-5.4cd.

Canadian International Paper Company, mesne: *See*—
Lee, Charles Allen; Furbeck, Warren R.; Bartley, Thomas S.; and Beaty, Jeremy, 3,682,761.

Canavan, Edmond J.: *See*—
Bingham, Ronald H.; and Canavan, Edmond J., 3,683,230.

Canon Kabushiki Kaisha: *See*—
Hosoe, Kazuya, 3,682,071.
Matsumoto, Kazuya, 3,682,526.
Sorimachi, Kanehiro, 3,682,408.
Yamaji, Keizo; and Toryu, Takao, 3,682,539.

Cantwell, Thomas C., Jr.; and Wilmot, Fullerton Richard D., to Hughes Aircraft Company. Cascaded digital integrator target detection system. 3,683,380, Cl. 343-16.00r.

Caporiccio, Gerardo: *See*—
Sianesi, Dario; Fontanelli, Renzo; and Caporiccio, Gerardo, 3,683,027.

Cappel, Fred: *See*—
Von Struve, Georg; and Cappel, Fred, 3,682,621.

Caputo, Jane, to Has-Cap, Inc. Boot support. 3,681,804, Cl. 12-114.600.

Caras, Bernard, to Burrough Corporation. Display panel having electrode registration support and connection means. 3,683,222, Cl. 313-51.000.

Carbonaro, Antonio: *See*—
Dall'Asta, Gino; Carbonaro, Antonio; Borghi, Italo; and Greco, Alberto, 3,682,870.

Carboni, Victor B.; and Pavlovic, Jack Dale, to Consolidated Foods Corporation, mesne. Clutch for printing device. 3,682,282, Cl. 192-48.910.

Carborundum Company, The: *See*—
Loricchio, Domingos, 3,682,625.

Carey, Michael Albert: *See*—
Gee, Davis William; and Carey, Michael Albert, 3,682,049.

Carissimi, Massimo; and Ravenna, Franco. 5,7-Bichloro 8 hydroxy 2 acetylamino quinoline. 3,682,927, Cl. 260-287.00r.

Carl Still, Firma: *See*—
Knappstein, Johannes, 3,682,339.

Carr, Peter, to Great Lakes Carbon Corporation. Stationary film mercury cell. 3,682,797, Cl. 204-99.000.

Carrier Corporation: *See*—
Eckman, Raymond L.; and Bryans, David F., 3,682,381.

Carter Blevins Detasslers, Inc.: *See*—
Blevins, Raymond H., 3,681,900.

Casler, Nancy Lee Cecile; and Vincentsen, Barbara Egee, to Du Pont de Nemours, E. I., and Company. Photoresist developer extender baths containing polyoxyalkylene ethers and esters and process of use. 3,682,641, Cl. 96-35.100.

Casson, Edward A., Jr. Automatic lithographic plate developing machine. 3,682,079, Cl. 95-89.00r.

Catholic Press Society, Inc.: *See*—
Person, Paul L., 3,682,744.

Cebal GP: *See*—
Cospen, Jean; and Baumann, Bernard, 3,682,349.

Celanese Corporation: *See*—
Watson, George A., 3,681,796.

Center, John L., to Vicra Sterile, Inc. Separable catheter insertion device. 3,682,173, Cl. 128-214.400.

Centre de Recherches de Pont-A-Mousson: *See*—
Bouyt, Roger Jean, 3,682,232.

Cerutti, Giovanni; Costa, Armando; and Cortona, Alessandro, to Olivetti, Ing. C., & C., S.p.A. Punched tape feed and guiding device for paper tape punches or readers. 3,682,414, Cl. 242-190.000.

Cha, Bernard: *See*—
Alagy, Jacob; Bigache, Francois; and Cha, Bernard, 3,683,035.

Chaiet, Louis: *See*—
Miller, William J.; Wolf, Frank J.; and Chaiet, Louis, 3,683,072.
Wolf, Frank J.; Miller, William J.; and Chaiet, Louis, 3,683,073.

Chaiken, Malcolm; and McCracken, John Raymond. Process and apparatus for treating fibres with fluids. 3,681,951, Cl. 68-44.000.

Chakravarti, Diptiman: *See*—
Orth, Richard D.; Surendranath, Jack G.; and Chakravarti, Diptiman, 3,682,790.

Chambers, Derek: *See*—
MacLachlan, Robert K.; and Chambers, Derek, 3,683,191.

Champion Spark Plug Company, mesne: *See*—
Wendt, John A.; and Rosauer, Peter J., 3,681,977.

Chanin, Milton. Piston accumulator and system using the same for use with high pressure hydraulic apparatus. 3,681,918, Cl. 60-51.000.

Chapin, Richard D. Spinner spray system. 3,682,389, Cl. 239-222.210.

Chatelain, Jean, to Produits Chemiques Pechiney Saint-Gobain. Copolymers of vinyl chloride and lower olefines. 3,683,051, Cl. 260-878.00r.

Chatelet, Henri: *See*—
Francois, Martin; Bruyere, Marcel; and Chatelet, Henri, 3,682,506.

Chavez, Abraham, Jr. Violin chin rest. 3,683,098, Cl. 84-278.000.

Check, Frank T., Jr., to Dynamics Corporation of America. Defrost control. 3,681,933, Cl. 62-156.000.

Chemed Corporation: *See*—
Patil, Arvind S.; Veltman, Preston L.; Loder, Edwin R.; Sabatelli, Philip M.; and Sarge, Carmen R., 3,682,190.

Cheney, Richard F.; and Weaver, Theodore L., to Sylvania Electric Products, Inc. Manufacture of substantially non-sagging refractory metal wire. 3,682,720, Cl. 148-126.000.

Cheremisov, Ivan Yakovlevich: *See*—

Konovalov, Boris Leonidovich; Kildishev, Vasily Semenovich; Kaplunov, Vadim Borisovich; Chigirinsky, Alexandr Abramovich; Glider, Evgeny Khaimovich; Gradov, Oleg Borisovich; Karpman, David Bentsionovich; Kariashevsky, Pavel Yakovlevich; and Cheremisov, Iva Yakovlevich, 3,683,220.

Cheshire, Alan Gillingham; and Place, Harold, to Lucas, Joseph, (Industries) Limited. Liquid atomising devices. 3,682,390, Cl. 239-399.000.

Chevron Research Company: *See—*
Jaffe, Joseph, 3,682,836.
Mulaskey, Bernard F., 3,682,811.

Chicago Bridge & Iron Company: *See—*
Pieper, Charles Joseph; and Langmead, Edmund Clarence, Jr., 3,682,460.

Chigirinsky, Alexandr Abramovich: *See—*
Konovalov, Boris Leonidovich; Kildishev, Vasily Semenovich; Kaplunov, Vadim Borisovich; Chigirinsky, Alexandr Abramovich; Glider, Evgeny Khaimovich; Gradov, Oleg Borisovich; Karpman, David Bentsionovich; Kariashevsky, Pavel Yakovlevich; and Cheremisov, Iva Yakovlevich, 3,683,220.

Chikirda, Sergei Ivanovich: *See—*
Kasatkin, Jury Ivanovich; Filimonov, Alexandr Vasilievich; Erlykov, Nikolai Sergeevich; Chikirda, Sergei Ivanovich; Strashinsky, Vadim Konstantinovich; and Zeldin, Vladimir Pinsokhovich, 3,681,833.

Child, James L.: *See—*
Schmunk, John D.; and Child, James L., 3,681,925.

Childcraft Education Corporation: *See—*
Alpert, Benjamin, 3,681,870.

Chomedey, Laval: *See—*
Sestanj, Kazimir; and Chomedey, Laval, 3,682,963.

Choo, Chai Y., to Halcon International Inc. Reduced pressure distillation process for recovering aniline from phenol-aniline mixtures. 3,682,782, Cl. 203-91.000.

Chujo, Hisao: *See—*
Matsushita, Shigenori; Sato, Fumitaka; Chujo, Hisao; and Horiike, Minori, 3,683,360.

Chung, Yun Hoon, to International Automated Machines, Inc. Shaker dispenser. 3,682,366, Cl. 229-7.00r.

Ciampa, Fred A.; Serafini, Angelo; and Mazzarella, Louis, to Standard Box Spring Co. Box spring and method of assembly. 3,681,794, Cl. 5-247.000.

Ciba Limited: *See—*
Martin, Henry; and Pissiotas, Georg, 3,682,934.

Ciba-Geigy AG: *See—*
Batzer, Hans; Nikles, Erwin; Ernst, Otto; and Porret, Daniel, 3,682,969.
Bosshard, Hans Heinrich; Leifels, Klaus-Dieter; and Seyberlich, Bernd, 3,682,682.
Liechti, Peter; Maeder, Erwin; Guglielmetti, Leonardo; and Siegrist, Emil, 3,682,900.
Liechti, Peter, 3,682,946.
Luethi, Christian; Biland, Hans-Rudolf; and Duennenberger, Max, 3,683,020.

Ciba-Geigy Corporation: *See—*
Bickel, Hans; Bosshardt, Rolf; Fechtig, Bruno; Hueller, Johannes; and Peter, Heinrich, 3,682,903.
Druey, Jean; and Schmidt, Paul, 3,682,918.
Howarth, Graham Arton; and Hoyle, William, 3,682,953.
Howarth, Graham Arton; and Hoyle, William, 3,682,956.
Zergenyi, Janos; and Habicht, Ernst, 3,682,961.
Zimmermann, Markus, 3,683,082.

Ciepley, Ted, to Bliss and Laughlin Industries, Incorporated. Concealed-stop slotted-bail for furniture components. 3,681,807, Cl. 16-126.000.

Ciepley, Ted, to Bliss and Laughlin Industries, Incorporated. Keeper-pendant combination. 3,681,813, Cl. 16-126.000.

Cincinnati Milacron Inc.: *See—*
Mathias, Richard A.; and Watson, Edgar J., 3,681,978.

Cintract, Bernard G.; and Sevin, Rene G., to Compagnie Francaise des Petroles. Rod stacking and handling apparatus. 3,682,259, Cl. 175-85.000.

Cira, James W. Air conditioning system for a crane cab. 3,682,240, Cl. 165-42.000.

C.I.T.-Compagnie Industrielle des Telecommunications: *See—*
Jacob, Jean-Baptiste; and Lavanant, Pierre, 3,683,162.

Citizen Watch Co., Ltd.: *See—*
Kanazawa, Kozaburo; and Kawakami, Eiji, 3,681,915.

Citizens and Southern National Bank, The: *See—*
Wachenheim, Howard W., 3,682,461.

Clark Equipment Company: *See—*
Lapaich, Michael W., 3,682,432.

Clauss, Gerhard; and Herrmann, Helmut, to Schmidt'sche Heissdampf-GmbH. Heat exchanger, particularly for cooling fresh cracked and/or synthesis gases. 3,682,241, Cl. 165-136.000.

Clayton, William J.; and Keyser, Charles D., to Mobil Oil Corporation. Highly permeable thermoplastic film perforating. 3,682,028, Cl. 83-30.000.

Cleary, Robert A.; and Mort, Paul R., Jr., to Syncro-Motion Corporation. Labelling machine for pressure sensitive labels. 3,682,743, Cl. 156-384.000.

Clivite Corporation: *See—*
Zoltan, Steven I., 3,683,212.

Closmann, Philip Joseph, to Shell Oil Company. Fracturing to interconnect wells. 3,682,246, Cl. 166-271.000.

Coates, John Stuart, to Du Pont de Nemours, E. I., and Company. Cellulosic esters of two organic acids blended with a copolymer of ethylene and at least one ethylenically unsaturated ester of a saturated fatty acid. 3,682,850, Cl. 260-17.00r.

Coen Company, Inc.: *See—*
Vosper, Ralph R., 3,682,451.

Coffee Corporation, S.A.: *See—*
Meriggi, Vincenzo, 3,682,090.

Coffey, Gerald P.; Ball, Lawrence E.; and Duke, June T., to Standard Oil Company, The. Polymeric compositions. 3,683,052, Cl. 260-879.000.

Cofoid, Robert D.; and Goodwin, Clarence J., to General Time Corporation. Weather instrument for indicating comfort temperature and relative humidity values. 3,681,992, Cl. 73-336.000.

Cohen, Milton J. Syringe for injection of freshly mixed liquid-powder. 3,682,174, Cl. 128-220.000.

Coherent Radiation Laboratories: *See—*
Hobart, James Lee; and Mefferd, Wayne S., 3,683,297.

Coilform Company Inc.: *See—*
McFarlane, Le Roy F., 3,682,180.

Coley, Kenneth R.: *See—*
De Angelo, Gerald J.; Gelzheiser, Francis L.; and Coley, Kenneth R., 3,683,414.

Colgate-Palmolive Company: *See—*
Suh, John T., 3,682,967.

Colijn, Johannes J. V.: *See—*
Tesch, Gunter Horst; and Colijn, Johannes J. V., 3,682,739.

Collin, Reimer, to Farbenfabriken Bayer AG. Process for producing thionothiol-phosphoric, -phosphonic, and phosphinic acid esters. 3,682,910, Cl. 260-248.0as.

Collins, Leslie C., to Rastern Rotorcraft Corporation. Cable load indicator. 3,683,355, Cl. 340-272.000.

Collins Radio Company: *See—*
Cory, Terry S.; and Kennedy, William A., 3,683,390.

Colorado Video, Incorporated: *See—*
Southworth, Glen R., 3,683,111.

Colt's Inc.: *See—*
Roy, Robert E., 3,682,040.

Colucci, Ivo, to Alfa Romeo S.p.A. Winddscreen wiper for motor vehicles. 3,681,812, Cl. 15-250.300.

Columbia Research Laboratories, Inc.: *See—*
Alibert, Vernon F., 3,682,161.

Columbus Electric Manufacturing Co.: *See—*
Bowen, John W.; and Perkins, Donald D., 3,683,144.

Colyer, John E., to Wellcome Foundation Limited, The. Combined electrode and hypodermic syringe needle. 3,682,162, Cl. 128-2.10r.

Combustion Engineering, Inc.: *See—*
Garrett, Sheyrl W., 3,683,189.

Commissariat a l'Energie Atomique: *See—*
Fedi, Leto; Meunier, Jean; and Vertut, Jean, 3,682,208.

Communication Transistor Corporation: *See—*
Duncan, David M., 3,683,241.

Communications Satellite Corporation: *See—*
Dill, George D., 3,683,116.

Compagnie des Freins et Signaux Westinghouse: *See—*
Malon, Jean Pierre; and Adde, Joseph W., 3,682,512.

Compagnie Francaise des Petroles: *See—*
Cintract, Bernard G.; and Sevin, Rene G., 3,682,259.

Compagnie Generale d'Electricite: *See—*
Fuchs, Bernard; and Gary, Christian, 3,683,174.

Compagnie Generale des Etablissements Michelin, raison sociale Michelin & Cie: *See—*
Verdier, Henri, 3,682,220.

Computer Sciences Corporation: *See—*
Grobert, Paul H.; Adams, Robert T.; and Klein, Melvin S., 3,683,165.

Conley, Vrain C.; and Zufelt, Paul R. Gravel washer and trash separator, process and apparatus. 3,682,299, Cl. 209-17.000.

Consolidated Foods Corporation, mesne: *See—*
Carboni, Victor B.; and Pavlovic, Jack Dale, 3,682,282.

Container Corporation of America: *See—*
Austin, Timothy K.; and Johnson, Fred J., 3,682,297.
Vuillemeier, Ralph O.; and Bagnatori, Giulio B., 3,682,052.

Continental Gummi-Werke Aktiengesellschaft: *See—*
Johannsen, Peter; and Kohler, Robert, 3,682,218.

Continental Oil Company: *See—*
Hasz, John W., 3,681,894.

Contratto, James: *See—*
Routh, Larry L.; and Contratto, James, 3,683,312.

Cook, Gordon Henry; and Laurent, Francois Rene, to Rank Organisation Limited. Objectives of variable focal length. 3,682,534, Cl. 350-186.000.

Cook, William J.; and McCain, Robert L. Water filter. 3,682,307, Cl. 210-123.000.

Coombs, Robert V.: *See—*
Bacso, Imre; and Coombs, Robert V., 3,682,985.

Coon, James A.: *See—*
Severn, Alpha, 3,682,449.

Cooper, Robert S.; and Wood, Donald C., to De Soto, Inc. Production of low silica content dry, granular automatic dish washing detergent. 3,682,829, Cl. 252-99.000.

Copolymer Rubber & Chemical Corporation: *See—*

Meredith, Curtis L.; Barrett, Robert E.; and Bishop, William A., 3,683,050.

Corbin, Dennis D.; Marquardt, Robert F.; and Gabby, John Lester, to Drackett Company, The. Process for preparing a low calorie snack. 3,682,652, Cl. 99-83.000.

Cornell Aeronautical Laboratory, Inc.: *See—*
Ludwig, Gary R., 3,681,973.

Corning Glass Works: *See—*
Dockerty, Stuart M., 3,682,609.
Eichelberger, William Ernest, 3,683,358.
Hollis, David L., 3,683,389.

Coronelli, Carolina; and Thiemann, Josef. Antibiotic selenomycin. 3,683,074, Cl. 424-119.000.

Corriston, Winfield F.; and Heisler, Robert W., to Johns-Manville Corporation. Pipe coupling. 3,682,502, Cl. 285-235.000.

Cortona, Alessandro: *See—*
Cerutti, Giovanni; Costa, Armando; and Cortona, Alessandro, 3,682,414.

Cory, Terry S.; and Kennedy, William A., to Collins Radio Company. HF Broadband omnidirectional antenna. 3,683,390, Cl. 343-792.500.

Corzine, Robert G.; and Mosko, Joseph A., to United States of America, Navy. Direction finding antenna system. 3,683,385, Cl. 343-113.00r.

Cosgrove, Albert S.: *See—*
Forgacs, Joseph; and Cosgrove, Albert S., 3,683,068.

Cospen, Jean; and Baumann, Bernard, to Cebal GP. Easy-opening stopper for metal cans and the like. 3,682,349, Cl. 220-42.00b.

Costa, Armando: *See—*
Cerutti, Giovanni; Costa, Armando; and Cortona, Alessandro, 3,682,414.

Cowan, Richard L., to Whirlpool Corporation. Combination drain manifold and self-cleaning filter. 3,681,947, Cl. 68-18.00f.

Cox, John Michael: *See—*
Bent, Keith Joseph; and Cox, John Michael, 3,682,971.

Coy, Don R.: *See—*
Zwetzig, Brian L.; and Coy, Don R., 3,682,486.

Cozzarin, Virgil J.: *See—*
Kipple, Harry P.; Cozzarin, Virgil J.; and Kapperman, Francis C., 3,683,154.

CPC International Inc.: *See—*
Haus, Joseph Benjamin, 3,683,078.
Robinson, Denis; Whelan, Richard Howard; Katz, Philip Harvey; and Montuori, Anthony George, 3,682,663.

Crabbe, Pierre; and Graf, Ulrich Werner, to Syntex Corporation. 17α-(2,3-Methylene-prop-1-en-1 yl)-steroids and 17α(2,3-monohalomethylene and 2,3-dihalomethylene) derivatives thereof. 3,682,984, Cl. 260-397.400.

Cranston, Lawrence: *See—*
Atwell, William J.; and Cranston, Lawrence, 3,682,201.

Creaser, Leonard F., to Shell Oil Company. Flexible insulants for containers and conduits. 3,682,824, Cl. 252-62.000.

Cresswell, Ronald M.; Mentha, John W.; and Seaman, Russell, to Burroughs Wellcome & Co., (U.S.A.) Inc. Method of preparing morpholino cyano-acrylamide. 3,682,957, Cl. 260-310.000.

Cricchi, James R.; and Beydler, William W., to Westinghouse Electric Corporation. Non-volatile memory element and array. 3,683,335, Cl. 340-173.00r.

Criss, Donald H.; and Kontz, Robert F., to Owens-Illinois, Inc. Method and apparatus for trimming blow molded plastic articles. 3,682,026, Cl. 82-75.000.

Crist, Michael C., to Dow Chemical Company, The. Liquid sample valve. 3,681,996, Cl. 73-422.000.

Crofts, George B. Presence detector. 3,683,176, Cl. 246-40.000.

Crosland Filters Limited: *See—*
Holyoak, Kenneth, 3,682,320.

Crosser, Ralph W., Jr.: *See—*
Peterson, Thomas D.; and Crosser, Ralph W., Jr., 3,682,325.

Crowe, Robert C.: *See—*
Buhayar, Eric S.; Hazard, James E.; Jaagus, John J.; Werner, Fred W.; Wheeler, Robert W.; and Crowe, Robert C., 3,682,296.

Cupler, John A., II. Tool changer employing automatic work indexing mechanism. 3,681,829, Cl. 29-26.00a.

Cupples Container Co.: *See—*
Schwoegler, Edward J.; and Ronden, Clifford P., 3,682,844.

Current, John Marvin: *See—*
Helmick, James William; Goebel, Brownell Wesley; and Current, John Marvin, 3,682,746.

Curry, Joseph E., to Texas Instruments, Incorporated. Frequency modulation demodulator. 3,683,288, Cl. 329-104.000.

Curtin, John L., to Minnesota Mining and Manufacturing Company. Color proofing method. 3,682,633, Cl. 96-27.000.

Cutler-Hammer, Inc.: *See—*
Hults, Harold W., 3,683,322.

Cvetkovich, Dejan O. Wheel lock for a vehicle. 3,682,195, Cl. 137-384.600.

Czarnecki, Robert M.: *See—*
Wieschel, John E.; Zanzig, Jerald G.; Czarnecki, Robert M.; and Murray, Claire W., 3,682,336.

Czekay, Arno; Kramer, Bruno; and Kaiser, Karl. Production of a vinyl chloride polymer of predetermined particle size distribution and apparent density. 3,682,877, Cl. 260-92.80w.

Czyzewski, Edward B.: *See—*
Hahn, Frederick C.; and Czyzewski, Edward B., 3,681,808.

D' Amore Industries, Inc.: *See—*
D'Amore, Michael J., 3,683,356.

Dahl, Henry A.: *See—*
Keur, Robert I.; Miller, Sandra; and Dahl, Henry A., 3,683,396.

Dahlgren, Lennart Gunnar Oskar, to Hasselblad, Fritz Victor. Centrifugal coupling means for photographic cameras provided with a roller-blind type focal plane shutter. 3,682,073, Cl. 95-57.000.

Dahms, Harald; Levy, Gabor B.; and Seltzer, David M., to Photovolt Corporation. Method for coulometric Karl Fischer titration. 3,682,783, Cl. 204-1.00t.

Dai Nippon Insatsu Kabushiki Kaisha: *See—*
Matsunaga, Kenji; and Horiuchi, Michio, 3,682,064.

Dai Nippon Toryo Kabushiki Kaisha: *See—*
Hitomi, Teiichi; Kotera, Noboru; and Sakamoto, Hitoshi, 3,682,833.

Daicel Ltd.: *See—*
Hozumi, Yukio; Sonoyama, Yuzo; and Omata, Masaru, 3,682,873.

Daimler-Benz Aktiengesellschaft: *See—*
Florus, Hans-Jorg; and Grossner, Horst, 3,683,283.
Kruse, Werner, 3,683,219.
Muller-Berner, Alfred Hermann, 3,682,152.

Dali, Carmelo P.; and Szempruch, Walter T., to Baxter Laboratories, Inc. Nasal cannula. 3,682,171, Cl. 128-206.000.

Dall'Asta, Gino; Carbonaro, Antonio; Borghi, Italo; and Greco, Alberto, to Goodrich, B. F., Company, The. Process for the preparation of linear, high molecular weight, sulphur vulcanizable copolymer of ethylene, propylene and 1,3-butadiene and catalyst sstems used therein. 3,682,870, Cl. 260-80.700.

Dalton, Thomas B., to Westran Corporation. Radial fold-up landing gear. 3,682,497, Cl. 280-150.500.

D'Amato Michael. Low speed, high torque rotary hydraulic motor. 3,682,567, Cl. 418-173.000.

D'Amato, Paolo; and Zetti, Gastone. Process and automatic device for signal-to-noise ratio measurement of a television signal. 3,683,282, Cl. 325-363.000.

D'Amore, Michael J., to D' Amore Industries, Inc. Fish caller. 3,683,356, Cl. 340-279.000.

Damsky, Walter: *See—*
Gilch, Heinrich; Damsky, Walter; and Reinking, Klaus, 3,682,847.

Dan-Fire-Energy ved Mita Gudmand-Hoyer: *See—*
Hoyer-Gudmand, Mita Maria, 3,683,215.

Danneberg, Peter B.: *See—*
Weber, Karl-Heinz; Zeile, Karl; Giesemann, Rolf; and Danneberg, Peter B., 3,683,348.

Darin, John K.; and Kanitkar, Dileep R., to Standard Oil Company. Staged catalyst addition for catalytic liquid phase oxidation of pseudocumene to trimellitic acid. 3,683,016, Cl. 260-524.00r.

Darling, Donald J., to Rosencrantz and Bermis Enterprises. Perforating machine and method. 3,681,964, Cl. 72-204.000.

Datamax Corporation: *See—*
Monroe, Kenneth E.; and Harmon, Samuel T., Jr., 3,683,367.

Davidson, Per: *See—*
Lofberg, Jan Anders Stensson; and Davidson, Per, 3,682,435.

Davies, Guy E., to Plessey Company Limited, The. Fluidic control systems. 3,682,192, Cl. 137-81.500.

Davis, Billy Eugene; and Dunegan, Ronald G. Fluid flow direction switching means. 3,682,198, Cl. 137-625.430.

Davison, Sol: *See—*
Seymour, Errol V.; Davison, Sol; and Haefele, Walter R., 3,682,187.

Day, John J.; and Hirschman, Paul S., to Ocean Protein Corporation. Mating tank for crustacea. 3,682,138, Cl. 119-2.000.

Daybrook-Ottawa Corporation: *See—*
Vivian, Frank H., 3,682,431.

De Alva, Paul C.: *See—*
Burklund, Wayne E.; and De Alva, Paul C., 3,682,417.

De Angelis, Eugene: *See—*
Wherry, Joseph L.; and De Angelis, Eugene, 3,682,278.

De Angelo, Gerald J.; Gelzheiser, Francis L.; and Coley, Kenneth R. Terminal device. 3,683,414, Cl. 339-272.0vc.

De Barge, Raymond R., to Emhart Corporation. Packing machine for folding blanks around article groups fed continuously therethrough. 3,681,893, Cl. 53-209.000.

De Koning, Jan; and Wolters, Tjako Aaldrik, to N.V. Ingenieursbureau voor Systemen en Octrooie "Spanstaal". Suction dredger having plural pumps and plural articulated pipe sections. 3,681,862, Cl. 37-58.000.

De Laval Turbine Inc.: *See—*
Feeney, Richard L., 3,682,564.

De Palma, James J.; Morrison, Edward D.; and Williams, Robert F., to Eastman Kodak Company. Polymeric rear projection screens. 3,682,530, Cl. 350-126.000.

De Paolis, Potito U., to Hunt-Wesson Foods, Inc. Process for the manufacture of soy protein isolates, soy protein concentrates and soy byproducts. 3,682,646, Cl. 99-17.000.

De Putter, Warner Jan, to Industriele Onderneming Wavin N.V. Packing container. 3,682,351, Cl. 220-97.00b.

De Soto, Inc.: *See—*
Cooper, Robert S.; and Wood, Donald C., 3,682,829.

de Staat der Nederlanden Ten Deze Verteginwoordigd Door de Directeur-Generaal der Posterijen Telegrafie en Telefonie: *See—*
Kuyt, Cornelis, 3,682,473.

De Vittori, Joseph M.: *See—*
Kinsella, Thomas P.; and De Vittori, Joseph M., 3,682,806.

Deal, John V.; and Nall, Clive. Modular wall and ceiling system. 3,683,100, Cl. 174-48.000.

Dean, George A., to Libbey-Owens-Ford Company. Sheet handling apparatus. 3,682,329, Cl. 214-7.000.

Dean, James T.: *See*—
Brooks, Warren B.; Dean, James T.; Manning, William F.; Rupp, Lewis A.; and Talley, William A., Jr., 3,682,242.

Deaton, David W., to Ahldea Corporation. Sterile liquid entraining system. 3,682,168, Cl. 128-194.000.

Debavan Manufacturing Company, Incorporated: *See*—
Ankeny, Jay H.; Foddy, Harold W.; and Kessler, Dayton F., 3,682,044.

Decker, George E., to Monsanto Company. Oscillating disk rheometer. 3,681,980, Cl. 73-101.000.

Defibrator Aktiebolag: *See*—
Reinhall, Rolf Bertil, 3,682,444.

Degelleke, Gerrit; and Bush, Robert E., to Midland-Ross Corporation. Rewinding apparatus. 3,682,031, Cl. 83-433.000.

Deinet, Adolph J., to Tenneco Chemicals, Inc. Method of controlling fungi with 2-acetoxy benzonitriles. 3,683,067, Cl. 424-78.000.

Deinet, Adolph J., to Tenneco Chemicals, Inc. Methods of controlling fungi and insects with organotin nitriles. 3,683,089, Cl. 424-288.000.

Del Monte Corporation: *See*—
Lent, Ralph C., 3,682,291.
Ross, Edward E., 3,682,301.

Delcon Corporation: *See*—
Steiger, Robert W.; and Skoog, Ralph E., 3,683,332.

Delta Data Systems Corporation: *See*—
Kleinschnitz, Andrew J., 3,683,359.

Delzenne, Gerard Albert: *See*—
Laridon, Urbain Leopold; Delzenne, Gerard Albert; Poot, Albert Lucien; and Peeters, Hogo Karel, 3,682,642.

Den Hollander, Charles William; Leimgruber, Willy; and Mohacsi, Ernest, to Hoffmann-La Roche Inc. (-)-di-0-isopropylidene-2-keto-L-gulonates. 3,682,925, Cl. 260-285.000.

Denki Onkyo Co., Ltd.: *See*—
Kawada, Takehiko, 3,683,210.

Dennis, Donald I., to American Plasti-Plate Corporation. Register. 3,682,085, Cl. 98-110.000.

Dennis, John D.; and Winkler, James M., to Westronics, Inc. Multi channel monitoring and printing recorder apparatus. 3,683,404, Cl. 346-34.000.

Dennison Manufacturing Company: *See*—
Mac Kenzie, Alfred K., 3,682,542.

Denton, Charles I.: *See*—
Shamash, Maurice B.; Staley, William W.; Denton, Charles I.; and Walton, Fred D., 3,683,105.

Derbunov, Mikhail Alexandrovich: *See*—
Shepelyakovsky, Konstantin Zakharovich; Ushakov, Boris Konstantinovich; Devyatkin, Vasily Petrovich; Devyatkov, Vladimir Fedorovich; Shakhov, Vasily Ivanovich; Kachkanov, Nikolai Nikolaevich; Gazarov, Leon Alexandrovich; Pchelkina, Valentina Mikhailovna; Drbunov, Mikhail Alexandrovich; and Vologdin, Vladislav Valentinovich, 3,682,519.

Deutsche Supraton Bruchmann & Zucker KG: *See*—
Zucker, Friedrich Josef; and Bruchmann, Hans-Dieter, 3,682,447.

Dev Bedi, Ram; and Dow, Ronald. Method for treating chromium-containing baths. 3,682,796, Cl. 204-97.000.

Deve, Vagn. Piston valve. 3,682,200, Cl. 137-625.470.

Devyatkin, Vasily Petrovich: *See*—
Shepelyakovsky, Konstantin Zakharovich; Ushakov, Boris Konstantinovich; Devyatkin, Vasily Petrovich; Devyatkov, Vladimir Fedorovich; Shakhov, Vasily Ivanovich; Kachkanov, Nikolai Nikolaevich; Gazarov, Leon Alexandrovich; Pchelkina, Valentina Mikhailovna; Drbunov, Mikhail Alexandrovich; and Vologdin, Vladislav Valentinovich, 3,682,519.

Devyatkov, Vladimir Fedorovich: *See*—
Shepelyakovsky, Konstantin Zakharovich; Ushakov, Boris Konstantinovich; Devyatkin, Vasily Petrovich; Devyatkov, Vladimir Fedorovich; Shakhov, Vasily Ivanovich; Kachkanov, Nikolai Nikolaevich; Gazarov, Leon Alexandrovich; Pchelkina, Valentina Mikhailovna; Drbunov, Mikhail Alexandrovich; and Vologdin, Vladislav Valentinovich, 3,682,519.

Dewas, Raymond. Weaving looms with external weft reserve. 3,682,204, Cl. 139-123.000.

Di Fiore, Lucio: *See*—
Ghirga, Marcello; Bertolini, Natale; and Di Fiore, Lucio, 3,683,043.

Di Stefan, Louis. Sagger. 3,681,818, Cl. 25-153.000322/036/1/8/025.

Diamond Engineering & Development Company: *See*—
Hull, Harold L., 3,682,363.

Diamond International Corporation: *See*—
Reifers, Richard F.; and Bixler, Kenneth D., 3,682,365.

Diamond Shamrock Corporation: *See*—
Beckers, Norman L., 3,682,830.
Palm, Bert E.; and Germano, Victor V., 3,682,718.

Diaz, Inocente A. Cooking apparatus for grains and the like. 3,682,665, Cl. 99-409.000.

Dick, A. B., Company: *See*—
Keur, Robert I.; Miller, Sandra; and Dahl, Henry A., 3,683,396.
Park, Woo C., 3,682,630.

Dickert, Yancey J.: *See*—
Tomalia, Donald A.; and Dickert, Yancey J., 3,682,948.

Dickinson, William B., to Sterling Drug Inc. 1-Substituted-1,2,3,5-tetrahydro-4,1-benzothiozepines. 3,682,962, Cl. 260-327.00b.

Dicus, Allen B., Jr.; Kharasch, Arnold S.; and Lavin, Sheldon, to Photogramics, Inc. Recording and reproduction of shapes. 3,682,063, Cl. 95-18.000.

Dierckx, Ludovicus Maria; Feron, Denis Lucian; and Guns, Karel, to La Metallo-Chimique S.A. Copper refining process. 3,682,623, Cl. 75-76.000.

Diesel Kiki Kabushiki Kaisha: *See*—
Ohtani, Yoshio, 3,682,145.

Dietmann, Karl: *See*—
Winter, Werner; Thiel, Max; Stach, Kurt; Schaumann, Wolfgang; Dietmann, Karl; and Ritter, Klaus, 3,683,023.

Dietz, Kurt, to Siemens Aktiengesellschaft. X-ray tube having a ray transmission rotary anode. 3,683,223, Cl. 313-60.000.

Dill, George D., to Communications Satellite Corporation. Terrestrial interface unit. 3,683,116, Cl. 179-15.0aq.

Dilo, Oskar KG: *See*—
Dilo, Richard, 3,681,823.

Dilo, Richard, to Dilo, Oskar KG. Needling apparatus. 3,681,823, Cl. 28-4.00r.

Dimroth, Peter: *See*—
Hiller, Heinrich; and Dimroth, Peter, 3,682,923.

Diversified Electronics Co., Inc.: *See*—
Welch, Robert H.; and Boyce, Kenneth D., 3,683,159.

Docker, Leslie Thomas. Spring interiors and articles combining spring interiors. 3,681,798, Cl. 5-351.000.

Dockerty, Stuart M., to Corning Glass Works. Controlling thickness of newly drawn glass sheet. 3,682,609, Cl. 65-83.000.

Doering, William Von E.; Farissey, William J., Jr.; and Frulla, Floro F., to Upjohn Company, The. Process for the preparation of substituted hydroquiones. 3,683,034, Cl. 260-620.000.

Doherty, Edward E. Water repelling compositions. 3,682,697, Cl. 117-167.000.

Dokoshi, Noriaki: *See*—
Yoda, Naoya; Kubota, Takashi; Kurihara, Masaru; Dokoshi, Noriaki; and Yoshihi, Toshiya, 3,682,860.

Dolfini, Joseph Edward: *See*—
Weisenborn, Frank Lee; Dolfini, Joseph Edward; Bach, Georges Gustav; and Bernstein, Jack, 3,682,981.

Domtar Limited: *See*—
Fedosoff, Joseph P.; and Trebish, John R., 3,682,601.

Donlavy, Donald J.: *See*—
Sandoval, Antonio A.; and Donlavy, Donald J., 3,681,859.

Dooley, John. Ventilated water closets automatically affording protection of its ventilating means from water damage. 3,681,790, Cl. 4-216.000.

Dornier System G.m.b.H.: *See*—
Radimirsch, Karl; and Schwarz, Dietrich, 3,682,463.

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Firth, Jay A.; and Power, Carlton. Hoof repair device. 3,682,179, Cl. 128-336.000.

Fischbein, Irwin W.; Alexander, Ben H.; and Sastri, Aiyaswami S., to Gillette Company, The. Sputter coating of razor blade with a beta-tungsten type alloy. 3,682,795, Cl. 204-192.000.

Fischer, Hans. Centering labyrinth seal. 3,682,489, Cl. 277-53.000.

Fischer, Paul W.; and Holm, Leroy W., to Union Oil Company of California. Method for inhibiting the deposition of wax from wax-containing soluble oils and micellar dispersions and soluble oil and micellar compositions inhibited thereby. 3,682,249, Cl. 166-05.00r.

Fish, John G., to Texas Instruments, Incorporated. Purification of silicon halides. 3,682,594, Cl. 23-205.000.

Fix, Sidney R.: *See*—
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Fiziko-Energeticheskiy Institut an Latviiskov SS: *See*—
Kroger, Alfon Fedorovich; and Stabulniek, Yan Petrovich, 3,683,260.

Flach, Karl-Egon: *See*—
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Flack, Raymond N.; Dvoracek, Louis M.; and Lueth, Paul F. Duo-sol process with split feed of polar solvent. 3,682,815, Cl. 208-314.000.

Flaczynski, Lawrence F., to Reliance Electric Company. Non-contact measurement method and apparatus. 3,682,554, Cl. 356-167.000.

Flairescence Ltd.: *See*—
Garrett, William, 3,682,181.

Fleissner, Heinz, to Vepa AG. Device for the treatment of endless textile material lengths. 3,681,946, Cl. 68-15.000.

Fleissner, Heinz, to Vepa AG. Process and apparatus for the continuous wet-treatment of filament groups. 3,681,949, Cl. 68-22.00r.

Fleissner, Heinz, to Vepa AG. Apparatus for the continuous wet-treatment of textile material. 3,681,950, Cl. 68-22.00r.

Fleming, Patrick J. Novel production and waste treatment process for producing said product. 3,681,851, Cl. 34-5.000.

Fletcher, Earl B.; and Lawson, Almon L. Bumper and spare tire assembly. 3,682,360, Cl. 224-42.050.

Fletcher-Terry Company, The: *See*—
Insolio, Thomas A.; Guzowski, Richard M.; and Steinkamp, Robert A., 3,682,027.

Flintkote Company, The: *See*—
Slater, Thomas C.; and Hamilton, Floyd C., Jr., 3,682,669.

Flis, Richard J.: *See*—
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Floeck, Wayne D.: *See*—
Kinley, John C.; Floeck, Wayne D.; and Agee, Charles W., 3,683,408.

Florus, Hans-Jorg; and Grossner, Horst, to Daimler-Benz Aktiengesellschaft. Rotary acceleration indicator, especially for motor vehicles. 3,683,283, Cl. 328-5.000.

Flowers, George H., Jr.: *See*—
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Flowers, Mary Frances Buchanan: *See*—
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Fluesmeier, Arsdel L., to Eagle-Picher Industries, Inc. Method of forming boric acid. 3,682,590, Cl. 23-149.000.

FMC Corporation: *See*—
Ager, John W., Jr., 3,683,017.
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Fuchs, Robert J.; and Pals, Raimond, 3,682,588.

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Fontanelli, Renzo: *See*—
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Ford, Eric Harold, to Lumenition Limited. Ignition systems for internal combustion engines. 3,682,150, Cl. 123-148.00e.

Ford, James A., to Kirsch Company. Unitary traverse rod. 3,682,226, Cl. 160-330.000.

Ford Motor Company: *See*—
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Forgacs, Joseph: *See*—
Forgacs, Joseph; and Cosgrove, Albert S. (said Cosgrove assor. to said), 3,683,068.

Forgacs, Joseph; and Cosgrove, Albert S., said Cosgrove assor. to said Forgacs, Joseph. Compositions containing Scopulariopsis brevicaulis on an alkaline substrate and the use thereof in the control of hemorrhogic syndrome in poultry. 3,683,068, Cl. 424-9.000.

Forkardt, Paul, Kommanditgesellschaft: *See*—
Scharfen, Hans; and Feustel, Wolfgang, 3,682,492.

Forster, Franz, to Linde Aktiengesellschaft. Hydrostatic-machine system. 3,681,919, Cl. 60-53.00a.

Foster, Lawrence H. Method for cooking foods using infrared radiation. 3,682,643, Cl. 99-1.000.

Foster Wheeler Corporation: *See*—
Burcin, Robert J.; Johnson, Orville L.; and Mouton Rene P., 3,682,501.

Foti, Sam J.; and Neff, Charles Y. Flexible metal hose. 3,682,203, Cl. 138-135.000.

Fouse, Samuel S.: *See*—
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Fowler, Eliot Patrick; and Greaves, Richard William, to United Kingdom Atomic Energy Authority. Logarithmic converter. 3,683,205, Cl. 307-230.000.

Fowler, Eliot Patrick, to United Kingdom Atomic Energy Authority. Apparatus for measuring the value of an alternating electrical signal of any wave form. 3,683,275, Cl. 324-115.000.

Fowler, Leslie E., to Beckman Instruments, Inc. Rectilinear recording arrangement for direct writing oscillographs. 3,683,410, Cl. 346-117.00a.

Fowler, Richard T., to Girling Limited. Vehicle wheel brakes and locking means therefor. 3,682,280, Cl. 188-265.000.

Fowler, T. Kenneth: *See*—
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Foxboro Company, The: *See*—
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Francis, Marion D., to Procter & Gamble Company, The. Compositions for inhibiting anomalous deposition and mobilization of calcium phosphate in animal tissue. 3,683,080, Cl. 424-204.000.

Francois, Martin; Bruyere, Marcel; and Chatelet, Henri, to Societe Nationale d'Etude et de Construction de Moteurs d'Aviation. Coupling devices. 3,682,506, Cl. 287-108.000.

Franke, Norman W.: *See*—
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Frankl & Kirchnes Fabrik fur Elektromotoren und elektrische Apparate, Firma: *See*—
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Franklin, George H., to Giddings & Lewis, Inc. Automatic assembly system employing first and second hammer mechanisms for insertion of workpieces. 3,681,837, Cl. 29-211.00d.

Franz Plasser Bahnbaumaschinen-Industriegesellschaft m.b.H.: *See*—
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Freeby, LeRoy W., to Robertshaw Controls Company. Temperature calibration assembly having adjustment member frictionally engaged by a cylindrical member frictionally engaged by a cylindrical member for setting and calibration. 3,683,304, Cl. 337-347.000.

Freedman, Frank B.; Friedman, Julius J.; and Williams, Bruce P. Parabiotic dialysis apparatus. 3,682,172, Cl. 128-214.00b.
Freeman, Alfred. Treatment of footwear. 3,681,850, Cl. 34-1.000.
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Fricker, David C., to ECC Corporation. Timed induction motor start switch utilizing positive temperature coefficient thermistor and semiconductor switching device. 3,683,250, Cl. 318-221.00e.
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Fuchs, Bernard; and Gary, Christian, to Compagnie Generale d'Electricite. Light source reflector support. 3,683,174, Cl. 240-103.000.
Fuchs, Robert J.; and Pals, Raimond, to FMC Corporation. Phosphate particles. 3,682,588, Cl. 23-106.000.
Fuji Photo Film Co., Ltd.: *See—*
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Shiba, Keisuke; Hinata, Masanao; Yoshida, Makoto; Imai, Shinichi; Sato, Akira; and Watanabe, Shigaru, 3,682,640.
Tamai, Yasuo; and Honjo, Satoru, 3,682,825.
Fujii, Kenzo; Kanai, Kazumichi; Inoue, Shigeru; Matsuo, Kiyoshi; and Asakura, Masami, to Mitsui Toatsu Chemicals, Incorporated. Process for the production of compressed shapes of urea. 3,683,057, Cl. 264-140.000.
Fujii, Toru, to Olympus Optical Co., Ltd. Wide angle photographic objective of the retrofocus type. 3,682,529, Cl. 350-215.000.
Fujita, Tadao; Wake, Makoto; and Konishi, Kunihiko, to Kubota Takko Kabushiki Kaisha. Organic-inorganic silicate binder for refractor processes. 3,682,668, Cl. 106-74.000.
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Furtmeier, Hans; and Arnhold, Rudolf, to Schubert & Salzer Maschinenfabrik Aktiengesellschaft. Method and apparatus for automatically winding flyer bobbins. 3,681,905, Cl. 57-34.0tt.
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Gaa, Hans, to Frankl & Kirchnes Fabrik fur Elektromotoren und elektrische Apparate, Firma. Contactless synchronizer, particularly for sewing machines. 3,683,294, Cl. 331-65.000.
Gabby, John Lester: *See—*
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Garrett, William, to Flairescence Ltd. Controlled heat release pad. 3,682,181, Cl. 132-31.00r.
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Gaudfrin, Guy. Filtering installation. 3,682,306, Cl. 210-96.000.
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Goldhammer, Albert. Wastepaper basket with paper shredder. 3,682,402, Cl. 241-100.000.
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Grobert, Paul H.; Adams, Robert T.; and Klein, Melvin S., to Computer Sciences Corporation. Four quadrant multiplier using bi-polar digital analog converter. 3,683,165, Cl. 235-194.000.

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Guier, William. Oil well drilling apparatus. 3,682,262, Cl. 175-205.000.

Guillerm, Jacques. Packaging and display case for cigarette lighter. 3,682,298, Cl. 206-45.310.

Gukelberger, Thomas F., Jr.; and Kleinfelder, Walter J., to International Business Machines Corporation. Method of changing the physical properties of a metallic film by ion beam formation and devices produced thereby. 3,682,729, Cl. 156-13.000.

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Gummel, Hermann Karl, to Bell Telephone Laboratories, Incorporated. Apparating and machine-implemented process for determining the terminal characteristics of a bipolar transistor. 3,683,417, Cl. 444-1.000.

Gundlach, Robert W., to Xerox Corporation. Photoelectrophoretic facsimile transmission system. 3,682,628, Cl. 96-1.200.

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Haas, Hans, to Knapsack Aktiengesellschaft. Process for the manufacture of trishydroxymethylphosphine oxide. 3,683,028, Cl. 260-606.50p.

Haase, Donald A., to Mobil Oil Corporation. Method for laminating oriented thermoplastic film to thermoplastic foam. 3,682,730, Cl. 156-79.000.

Haban, Joseph. Method of manufacturing shear fingers for sickle bars. 3,682,021, Cl. 76-101.00r.

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Hadzeriga, Pablo, to Hazen Research, Inc. Treatment of phosphate rock slimes by freezing. 3,681,931, Cl. 62-58.000.

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Hahn, Frederick C.; and Czyzewski, Edward B., to Esco Corporation. Crowfoot-type drag rope socket assembly. 3,681,808, Cl. 24-12.60k.

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Hallman, Newt M., to Universal Oil Products Company. Fractionator reboiling by utilizing convection heat. 3,682,780, Cl. 203-22.000.

Halter, Paul. Squirting gun and dosing device therefor. 3,682,175, Cl. 128-223.000.

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Hamrick, James C., to Jet Line Products, Inc. Suction hose for vacuum cleaning system for use with hose plug-in and hose retracting outlets. 3,682,500, Cl. 285-7.000.

Han, Gi Hwan. Soap case having scrubbing means thereon. 3,681,806, Cl. 15-105.000.

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Hansen, Carl Arthur, to Ray Proof Corporation. Automatic door operating mechanism for radiation proof enclosures. 3,681,873, Cl. 49-139.000.

Hanslip, Trevor William, to International Computers Limited. Variable field adder. 3,683,163, Cl. 235-173.000.

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Haraszti, Tegze. Logic interconnections. 3,683,201, Cl. 307-205.000.

Haraszti, Tegze, to Licentia Patent-Verwaltungs-G.m.b.H. Electrical storage element. 3,683,206, Cl. 307-279.000.

Harbonn, Jacques, to Institut Francais Du Petrole des Carbonats et Lubrifiants. Autonomous device for the storage and use of electrical power. 3,683,258, Cl. 320-61.000.

Hardy, Kenneth David, to Beecham Group Limited. Preparation of 6-acylaminopenicillanic acids. 3,682,896, Cl. 260-239.100.

Haren, Ralph J., to Tenneco, Inc. Compact muffler. 3,682,270, Cl. 181-54.000.

Harkins, William Joseph McMahon. Rodent racing device. 3,682,477, Cl. 273-86.00b.

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Harris, Gerald R. Pivotal arm band saw. 3,682,030, Cl. 83-201.040.

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Harris-Intertype Corporation: *See—*
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Harrison, George C., to Minnesota Mining and Manufacturing Company. Pallet with improved joint construction. 3,682,110, Cl. 108-51.000.

Harrison, Robert S.; and Lunsford, Max W., to Ford Motor Company. Carburetor throttle valve positioner. 3,682,148, Cl. 123-97.00b.

Harter, Charles G., to Garden Island Helicopters, Inc. Aerial spraying device. 3,682,418, Cl. 244-136.000.

Hartman, Robert B., to Remington Arms Company, Inc. Range finder to continuously determine range utilizing a reticule having indicia. 3,682,552, Cl. 356-3.000.

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Harvey, John P., to Harvey Harvesters, Inc. Volume measuring container. 3,682,000, Cl. 73-428.000.

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Hasz, John W., to Continental Oil Company. Vapor adsorption process for recovering selected components from a multi-component gas stream. 3,681,894, Cl. 55-33.000.

Haus, Joseph Benjamin, to CPC International Inc. Transparent toxicant compositions. 3,683,078, Cl. 424-190.000.

Havera, Herbert John, to Miles Laboratories, Inc. (Phenyl piperazyl alkyl) 3,4-dihydrocarbostyril. 3,682,920, Cl. 260-268.0bq.

Hawkins, Paul Maddison, to General Alarm Corporation. Automatic locking system. 3,681,954, Cl. 70-216.000.

Hawthorne, Vaughn T., to Keystone Industries, Inc. End-of-car impact absorbing device. 3,682,324, Cl. 213-8.000.

Hay, Russell G.; Murphy, Clarence R.; and Walsh, William L., to Gulf Research & Development Company. Hydrobromination of alpha-olefins with prior air-blowing. 3,683,037, Cl. 260-663.000.

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Heinzelmann, Walter; Flach, Karl-Egon; Vob, Alfred; and Kroschel, Heinz, to Dynamit Noebl Aktiengesellschaft. Igniter charge for propellant compositions and rocket propellant charges. 3,682,727, Cl. 149-19.000.

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Henrick, Clive A.; Edwards, John A.; and Fried, John H., to Syntex Corporation. Production of unsaturated carbocyclic ketones. 3,682,970, Cl. 260-327.00m.

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Henry, David W.: *See—*
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Henry, Malcolm C.; and Krebs, Adolf W. Methods of repelling rodents using tetrovalent organo-lead compounds. 3,683,090, Cl. 424-293.000.

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Herrmann, Frank A.; and Shabad, Zygmund, to Gould Inc., mesne. Automatic volume control through preamplifier supply voltages. 3,683,290, Cl. 330-15.000.

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Hess, Karl-Gunter; Himmelsbach, Paul; and Thomas, Otto, to Schneider, Jos., & Co., Optische Werke. Driving mechanism for components of optical system. 3,682,072, Cl. 95-45.000.

Hewitt, Daniel B. Incineration apparatus. 3,682,599, Cl. 23-277.00c.

Heyer, John A., to Victory Metal Manufacturing Corporation. Vaporizer with external heating element. 3,683,153, Cl. 219-275.000.

Hi-Way Safti Signal Manufacturing Corporation: *See—*
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Hickner, Richard A.; Bredeweg, Corwin J.; and Plepys, Raymond A. Sulfur-containing pyrrolidines. 3,682,965, Cl. 260-326.840.

Hicks, J. Byron. Precombustion catalytic device for use in a spark ignition internal combustion engine employing a vaporizable liquid hydrocarbon fuel. 3,682,608, Cl. 48-180.00r.

Hikita, Yoshihiko: *See—*
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Hill Oiva E., to Norton Company. Deep feed mechanism. 3,681,878, Cl. 51-165.800.

Hiller, Heinrich; and Dimroth, Peter, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. Nickel complex of the dioxime of 2-acetoacetyl amino-6-ethoxybenzothihzole. 3,682,923, Cl. 260-299.000.

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Hines, Gordon E.; and Anderson, Ronald W., to Balance Technology, Inc. Balancing machine and method for calibrating the same. 3,681,967, Cl. 73-1.00b.

Hiraoka, Michito; and Hikita, Yoshihiko, to Hitachi Metals, Ltd. Magnet vehicle. 3,682,265, Cl. 180-9.20r.

Hiratsuka, Michio; Ishii, Jiro; Goto, Tadahiko; and Takeda, Atsuo, to Kabushiki Kaisha Yaskawa Denki Seisakusho. Transducer system in the apparatus detecting detectin and measuring mechanical loads or stresses. 3,681,982, Cl. 73-141.00a.

Hirose, Masanao. High frequency noise prevention cable. 3,683,309, Cl. 338-214.000.

Hirota, Tatsuo. Eye-liner device. 3,682,559, Cl. 401-278.000.

Hirschman, Paul S.: *See—*
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Hirshfeld, Julian J.; Reuben, Bertie J.; and Hacklander, Egon H., to Monsanto Company. Glue and dye in nylon-jute carpet dyeing. 3,682,582, Cl. 8-18.000.

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Hnizda, Vincent F., to Ethyl Corporation. Method of removing manganese oxide deposits. 3,682,702, Cl. 134-41.000.

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Hobbs, David: *See—*
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Hobbs, Jeanie Wright: *See—*
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Hodder, Wayne K.; and Browder, Lewis B., to Bell & Howell Company. Magnetic tape recording circuit. 3,683,131, Cl. 179-100.20k.

Hoeffleur, Albert, to Regus A.G. Spring-loaded hammer. 3,682,254, Cl. 173-49.000.

Hoekenga, Piet E.: *See—*
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Hoffmann, Hellmut; and Hammann, Ingeborg, to Farberfabriken Bayer Aktiengesellschaft. Alkyl esters of thiazolotriazolyl phosphoric and phosphonic acids and amides, and thiono counterparts. 3,682,943, Cl. 260-306.700.

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Hohenstein, Jack H. Laser capillary support spacer. 3,683,300, Cl. 331-94.500.

Hohloch, Kurt, to Zinser-Textilmaschinen Gesellschaft mit beschrankter and Haftung. Spindle brake. 3,681,908, Cl. 57-88.000.

Holbrook, Franklin K.: *See—*
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Holland, Dewey G.; and Garis, Eric Vernon, to Air Products and Chemicals, Inc. Method for preparing perfluorocycloolefins. 3,683,036, Cl. 260-648.00f.

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Holley, Carl A., to Obenchain Corporation, mesne. Method for agglomerating and hardening metal oxide pellets. 3,682,619, Cl. 75-3.000.

Hollingsworth, Willis W., to United States Steel Corporation. Hanging bosh construction with means allowing for thermal expansion. 3,682,457, Cl. 266-25.000.

Hollis, David L., to Corning Glass Works. Omnidirectional loop antenna array. 3,683,389, Cl. 343-788.000.

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Holmes, William A., to McGraw-Edison Company. Magnetic recording apparatus having an impact resistant head mounting feature. 3,682,481, Cl. 274-4.00h.

Holmes, William A., to Polaroid Corporation. Magnetic recording apparatus having an impact resistant head mounting feature. 3,682,482, Cl. 274-4.00h.

Holt, John K., to Electromagnetic Industries, Incorporated. Shark repelling device including pulse generator producing electrical field in water between widely spaced electrodes. 3,683,280, Cl. 325-116.000.

Holton, William C., to Texas Instruments, Incorporated. Information storage by changing the valence state of a semi-conductor crystal. 3,683,337, Cl. 340-173.0cc.

Holtschmidt, Hans: *See—*
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Holtz, Hermann: *See—*
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Holtz, Joschim, and; and Schulze, Peter, to Siemens Aktiengesellschaft. Ignition control device for a converter. 3,683,261, Cl. 321-5.000.

Holyoak, Kenneth, to Crosland Filters Limited. Filter assemblies. 3,682,320, Cl. 210-444.000.

Holz, George E.; and Ogle, James A., to Burroughs Corporation. Display panel wherein each scanning cell is assorted with a plurality of display cells. 3,683,364, Cl. 340-324.00r.

Holz, George E., to Burroughs Corporation. Magnetic keyboard terminal. 3,683,371, Cl. 340-365.000.

Honda, Makoto; and Sato, Kenichiro, to Asahi Kasei Kogyo Kabushiki Kaisha. Production of block copolymers. 3,683,047, Cl. 260-857.0tw.
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Honold, Peter, to Aktiengesellschaft Berlin and Munich. Radar antenna arrangement. 3,683,374, Cl. 343-6.50r.
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Hopps, Harvey B.; Jackman, Dennis; and Biel, John H., to Aldrich Chemical Company, Inc. Dibenzofuryl ketones. 3,682,921, Cl. 260-268.0tr.
Horak, Edgardo: *See—*
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Horton, Charles A. Variable-tone electronic alarm system. 3,683,346, Cl. 340-213.00r.
Horwinski, Elwood R., to Lewis Engineering Company, The. Enclosed and confined area automatic fire extinguisher hose and apparatus. 3,682,250, Cl. 169-5.000.
Hosoe, Kazuya, to Canon Kabushiki Kaisha. Automatic focusing device and cameras. 3,682,071, Cl. 95-44.000.
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Howarth, Graham Arton; and Hoyle, William, to Ciba-Geigy Corporation. Substituted 5-nitrofuryl-pyrazoles. 3,682,953, Cl. 260-310.00r.
Howarth, Graham Arton; and Hoyle, William, to Ciba-Geigy Corporation. Substituted 3-(5-nitro-2-furyl)- pyrazoles. 3,682,956, Cl. 260-310.00r.
Howe, James W., Jr.: *See—*
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Hoxsie, Frank E., to Lowrance Electronics Manufacturing Corporation. Depth meter having improved time varying gain control. 3,683,324, Cl. 340-3.00r.
Hoyer, Manfred; and Welke, Helmut, to Klockner-Humboldt Aktiengesellschaft. Method of and device for controlling a multi-stage change gear transmission. 3,682,019, Cl. 74-745.000.
Hoyer-Gudmand, Mita Maria, to Dan-Fire-Energy ved Mita Gudmand-Hoyer. Method and an apparatus for the production of heat and pressure energy. 3,683,215, Cl. 310-11.000.
Hoyle, William: *See—*
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Hozumi, Yukio; Sonoyama, Yuzo; and Omata, Masaru, to Daicel Ltd. Process for producing spherical styrene-acrylonitrile copolymer particles of controlled particle diameter. 3,682,873, Cl. 260-85.500.
Huang, Ching Yun; Ueno, Kazuo; and Masawaki, Keizo, to Japan Gas-Chemical Company Inc. Heat-curable composition comprising polyglycidy xylylene-diamine and process for preparation of polyglycidyl xylylenediamine. 3,683,044, Cl. 260-830.0tw.
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Huchette, Paul V.; and Hall, Homer H., Jr., to Edgewater Corporation. Composite Belleville type springs and manufacture. 3,682,466, Cl. 267-161.000.
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Hugonin, Gerald H., to Schlumberger Technolgy Corporation. Apparatus for inspecting tubular goods having guide members to fix a detector in the center of the tubular goods. 3,683,188, Cl. 250-83.30d.
Hujik, Ladislav, to Bata Shoe Company, Inc. Apparatus for injection molding of plastic footwear articles. 3,682,579, Cl. 425-129.000.
Hull, Harold L., to Diamond Engineering & Development Company. Instant replay tape system. 3,682,363, Cl. 226-118.000.
Hults, Harold W., to Cutler-Hammer, Inc. Integrated wire termination system. 3,683,322, Cl. 339-255.00r.
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Hyde Winfield H. Method and apparatus for controlling subnatant oil seepage. 3,681,923, Cl. 61-1.000.
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Ichinose, Noboru; Egami, Harutoshi; Yokoyama, Katsunori; and Yamashita, Yohachi, to Tokyo Shibaura Electric Co., Ltd. Piezoelectric oxide material. 3,682,827, Cl. 252-62.900.
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Ishibashi, Wataru. Method of refining waste oils. 3,682,807, Cl. 204-188.000.
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Iwamoto, Minoru, to Kabushiki Kaisha Ricoh. Device for detecting the end of a roll of copy paper in a photocopying machine or the like. 3,682,543, Cl. 355-13.000.
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Jackson, Russell R. Display systems and devices. 3,683,109, Cl. 178-7.850.
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Jacobs, David F., to Westinghouse Electric Corporation. Method and apparatus for light detector fabrication without brazing. 3,683,192, Cl. 250-216.000.
Jacobs, Harvey Barry. Emergency percutaneous trans-tracheal high flow oxygen catheter-type resuscitator for restoration of breathing in non-breathing patients. 3,682,166, Cl. 128-145.800.
Jacobson, Calvin L.; Morken, Robert E.; and Silver, Norman C. Hammermill hammer and assembly. 3,682,401, Cl. 241-195.000.
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Jalbert, Donald A. Sealed casket made of plastic for use with a burial system. 3,681,820, Cl. 27-7.000.
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Sakursda, Ichiro; and Okada, Toshio, 3,682,802.
Japan Gas-Chemical Company Inc.: *See—*
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Japan Radio Company, Limited: *See—*
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Jarovitzky, Peter A., to Radiation Research Corporation. Process for the polymerization of 2-pyrrolidone with carbon dioxide as activator. 3,682,869, Cl. 260-78.00p.
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Zirngibl, Hans; Jaschiski, Klemens; Brandle, Karl; Beumer, Peter; and Weidmann, Walter, 3,681,895.
Jeffers & Bailey, Inc.: *See—*
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Jeffers, Andrew R. High contrast display device. 3,682,531, Cl. 350-156.000.
Jeffers, William D., to Jeffers & Bailey, Inc. Fusible temperature responsive trigger device. 3,682,130, Cl. 116-114.500.
Jenkins, Victor F.; Newton, Geoffrey P.; and Beeken, Michael J., to Laporte Industries Limited. Polymerisation process. 3,682,865, Cl. 260-75.0ep.
Jerson, Sidney N.: *See—*
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Jet Line Products, Inc.: *See*—
Hamrick, James C., 3,682,500.
Jindra, Karel; Pavlik, Kamil; Kas, Josef; Kocian, Zdenfk; Hanjs, Vaciav; and Tyls, Jaruslav, to Elitex Zavody textilmiho strojirenstvi generalini. Fiber separating roller device for spinning units of pneumatic-mechanical yarn manufacturing machine. 3,681,97, Cl. 57-58.910.
Johannsen, Peter; and Kohler, Robert, to Continental Gummi-Werke Aktiengesellschaft. Emergency supporting ring for vehicle wheels with pneumatic tires. 3,682,218, Cl. 152-158.000.
Johannsmeier, Karl-Heinz; Stoft, Paul E.; and Larsen, Tor G., said Larsen assor. to Kasper Instruments Inc. Apparatus for the automatic alignment of two superimposed objects, E. G. a semiconductor wafer and mask. 3,683,195, Cl. 250-219.0dr.
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Johnson, Cecil J.: *See*—
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Johnson, Ernest W., to General Mills, Inc. Artificial flavored berries and process of preparing same. 3,682,654, Cl. 99-103.000.
Johnson, Fred J.: *See*—
Austin, Timothy K.; and Johnson, Fred J., 3,682,297.
Johnson, Nathaniel M.: *See*—
Butler, Fred C.; Johnson, Nathaniel M.; and Wallace, Clifford G., 3,683,302.
Johnson, Orville L.: *See*—
Burcin, Robert J.; Johnson, Orville L.; and Mouton Rene P., 3,682,501.
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Johnson, Robert Norman, to Union Carbide Corporation. High temperature reduced catalyst and process. 3,682,878, Cl. 260-94.9da.
Johnson, Rodney L.: *See*—
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Lechner, Thomas J., Jr., 3,682,191.
Johnston, Howard: *See*—
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Jones, Kenneth; Joscelyne, Eric H.; and Harvey, Peter J. J. Solvent transference of a solute by distillation in the presence of a second solvent. 3,682,781, Cl. 203-60.000.
Jones, Robert B.: *See*—
Brown, Harvey A.; and Jones, Robert B., 3,682,549.
Jones, Stanley C., to Marathon Oil Company. Use of water-external micellar diapersions in oil recovery. 3,682,247, Cl. 166-273.000.
Joscelyne, Eric H.: *See*—
Jones, Kenneth; Joscelyne, Eric H.; and Harvey, Peter J. J., 3,682,781.
Joyce, John E. Outlet ports for a centrifuge. 3,682,374, Cl. 233-47.00r.
Judge, Gordon W.: *See*—
Packer, Mervyn B.; and Judge, Gordon W., 3,682,515.
Jumelle, Louis Francois, to Societe Nationale d'Etude et de Construction de Moteurs d'Aviation. Device for reducing the noise of a gaseous jet. 3,682,269, Cl. 181-33.0hc.
Jumer, John F. Fabricating and electropolishing interiors of cylindrical vessels with domed ends. 3,682,799, Cl. 204-140.500.
Junemann, Hubert, to Kochs Adlernahmaschinen Werke OG. Apparatus for automatically sewing a tape on workpieces. 3,682,119, Cl. 112-121.140.
Jung, Heinz, to Reiner, Ernst, Kommonditgesellschaft feirmechanik und Apparatebau. Inking device for stamping apparatus or printing machines. 3,682,134, Cl. 118-265.000.
Jurczak, Henry E.; and Olney, Edward S., to Kraftoo Corporation. Marshmallow confection. 3,682,659, Cl. 99-134.00a.
Kaartinen, Nilo H., to Packard Instrument Company, Inc. Apparatus for the preparation of liquid form samples for radioactive isotope tracer studies. 3,682,598, Cl. 23-262.000.
Kaasenbrood, Petrus J. C.; and van Nassau, Petrus J. M., to Stamicarbon N.V. Process for preparing melamine from urea. 3,682,911, Cl. 260-249.70a.
Kabushiki Kaisha Hattori Tokeiten: *See*—
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Kaku, Kanui; Asaba, Mitsuo; Gondo, Yasaka; Kachi, Atsuyuki; and Maisumoto, Satoshi. Process for producing dyeable polyolefin. 3,683,049, Cl. 260-876.00r.
Kallenborn, Vernon H.: *See*—
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Kaltenbronn, James S.; and Short, Franklin W., to Parke, Davis & Company. Phenyl benzofuran acetic acid compounds. 3,682,976, Cl. 260-346.200.
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Kalwaites, Frank, to Johnson & Johnson. Nonwoven fabric comprising rosebuds bounded by bundles. 3,682,756, Cl. 161-109.000.
Kaminstein, Bernard; and Rattin, Luciano, to Porsche, Dr.-Ing. H.c.F., K.G., Firma. Duplicating machine. 3,682,095, Cl. 101-463.000.
Kamola, Roman C., to Xerox Corporation. Automatic developer controller. 3,682,132, Cl. 118-7.000.
Kamp, Heinz, to Schlafhorst, W., & Co. Device for orienting and isolating elongated wound textile members. 3,682,293, Cl. 198-33.0aa.
Kanai, Kazumichi: *See*—
Fujii, Kenzo; Kanai, Kazumichi; Inoue, Shigeru; Matsuo, Kiyoshi; and Asakura, Masami, 3,683,057.
Kanazawa, Kozaburo; and Kawakami, Eiji, to Citizen Watch Co., Ltd. Balance wheel assembly of a battery-driven timepiece. 3,681,915, Cl. 58-28.00d.
Kanegafuch Boseki Kabushiki Kaisha: *See*—
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Kanitkar, Dileep R.: *See*—
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Kantola, Mikko. Timber handling machine. 3,682,211, Cl. 144-3.00d.
Kao Soap Co., Ltd.: *See*—
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Kapany, Narinder S., to Optics Technology, Inc. Apparatus for acquiring and displaying real time 3-D information. 3,682,553, Cl. 356-4.000.
Kaplansky, Arkady Fridmanovich; Korenblit, Izya Yakovlevich; Frenkel, Andrei Filiprovish; and Zakhariev, Alexandr Ivanovich, to Nevsky Mashinostroitelny zavod imeni V.I. Device for adjusting the angle of inclination of guide blades of turbo machines. 3,682570, Cl. 415-147.000.
Kaplunov, Vadim Borisovich: *See*—
Konovalov, Boris Leonidovich; Kildishev, Vasily Semenovich; Kaplunov, Vadim Borisovich; Chigirinsky, Alexandr Abramovich; Glider, Evgeny Khaimovich; Gradov, Oleg Borisovich; Karpman, David Bentsionovich; Kariashevsky, Pavel Yakovlevich; and Cheremisov, Iva Yakovlevich, 3,683,220.
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Kapperman, Francis C.: *See*—
Kipple, Harry P.; Cozzarin, Virgil J.; and Kapperman, Francis C., 3,683,154.
Karas, Edwin L.; Lee David S.; and Vanslette, Robert A., to Foxboro Company, The. Sample valve for chromatographic apparatus. 3,681,998, Cl. 73-422.0gc.
Karataev, Gury Sergeevich: *See*—

Solntsev Viktor Gavrilovich; Manuilov, Jury Grigorievich; Karataev, Gury Sergeevich; Podborsky, Leonid Ermolaevich; Mikhailov, Pavel Mikhailovich; Tsapsky, Alexandr Zakharovich; Milov, Vladimir Gennadievich; Saikonen, Evert Alexandrovich; Gubanov, Vadim Gergievich; Olkhovsky, Jury Fedorovich; Naret, Grigory Borisovich; Garbuzov, Zalman Eremeevich; Balaklo, Viktor Nikolaevich; Griffin, Evgeny Pavlovich; Smirnov, Alexandr Fedorovich; Mutushev, Gavrill Akhmetovich; Smirnov, Leonid Nikolaevich; Livshits, Lev Grgorievich; and Lamin, Vladimir Ivanovich, 3,681,863.

Kardos, Otto; Arcilesi, Donald Allan; Tomson, Arthur James; and Valayil, Sylvester Paul, to M&T Chemicals Inc. Copper electroplating. 3,682,788, Cl. 204-52.00r.

Kariashevsky, Pavel Yakovlevich: *See*—
Konovalov, Boris Leonidovich; Kildishev, Vasily Semenovich; Kaplunov, Vadim Borisovich; Chigirinsky, Alexandr Abramovich; Glider, Evgeny Khaimovich; Gradov, Oleg Borisovich; Karpman, David Bentsionovich; Kariashevsky, Pavel Yakovlevich; and Cheremisov, Iva Yakovlevich, 3,683,220.

Karle, Hermann G. Mechanism for the metered dispensing of past-substances. 3,682,356, Cl. 222-132.000.

Karpman, David Bentsionovich: *See*—
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Karrh, John H.; and Flowers, George H., Jr.; deceased (by Flowers, Mary Frances Buchanan; and Pasco, H. Merrill; executors). Thermosetting resin coatings. 3,682,676, Cl. 117-16.000.

Kas, Josef: *See*—
Jindra, Karel; Pavlik, Kamil; Kas, Josef; Kocian, Zdenfk; Hanjs, Vaciav; and Tyls, Jaruslav, 3,681,907.

Kasatkin, Jury Ivanovich; Filimonov, Alexandr Vasilievich; Erlykov, Nikolai Sergeevich; Chikirda, Sergei Ivanovich; Strashinsky, Vadim Konstantinovich; and Zeldin, Vladimir Pinsokhovich, to Vesesojuznyi Projektno-Konstruktorskij Institut Technologii Elektrtechnichnickeskogo Proizodstva. Device for stitched-wiring of long-time memory means. 3,681,833, Cl. 29-203.0mm.

Kasawaki, Keiki, to Kenji Watanabe. Bobbin case for sewing machines. 3,682,121, Cl. 112-231.000.

Kase, Charles R., Jr.: *See*—
Trifunovic, Alexander L.; and Kase, Charles R., Jr., 3,681,819.

Kase, Heino: *See*—
Sage, Bradley B.; and Kase, Heino, 3,682,003.

Kaspar, Jan; and Bicik, Bladislav, to Vyzkumny Ustav Organickyck Syntez. Apparatus for comminuting and dispersing solid particles. 3,682,399, Cl. 241-50.000.

Kasper, Frank S., to Amtron, Inc. Method and apparatus for effecting the actuating and non-actuation of a responsive instrumentality. 3,682,215, Cl. 146-222.000.

Kasper Instruments Inc.: *See*—
Johannsmeier, Karl-Heinz; Stoft, Paul E.; and Larsen, Tor G. (said Larsen assor. to), 3,683,195.

Kaspers, Helmut: *See*—
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Katchka, Jay R., to Robertshaw Controls Company. Thermostatically operated valve assembly. 3,682,382, Cl. 236-48.00r.

Kato, Koichi: *See*—
Sano, Keizo; Watanabe, Taigi; Tanaka, Michihiko; Ichikawa, Yoshimitsu; Kato, Koichi; and Matsuura, Hirokichi, 3,682,846.

Kato, Yasuharu; and Matsueda, Hirokazu. Oils for heat treatment of thermoplastic fibers. 3,682,694, Cl. 117-138.80b.

Katum Corporation: *See*—
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Katz, Philip Harvey: *See*—
Robinson, Denis; Whelan, Richard Howard; Katz, Philip Harvey; and Montuori, Anthony George, 3,682,663.

Kause, Niilo. Feeding device for fodder preserving liquid. 3,682,391, Cl. 239-410.000.

Kawada, Takehiko, to Denki Onkyo Co., Ltd. High voltage generating apparatus utilizing piezoelectric transformers. 3,683,210, Cl. 310-8.100.

Kawai, Masanobu; and Mukai, Noboru, to Kyowa Hakko Kogyo Co., Ltd. Production of microbial cell-lytic enzymes. 3,682,778, Cl. 195-66.00r.

Kawakami, Eiji: *See*—
Kanazawa, Kozaburo; and Kawakami, Eiji, 3,681,915.

Kawakami, Yohei; Seki, Toshio; and Suzuki, Kozaburo, to Nitto Kasei Co., Ltd. Boron-containing organotin compounds. 3,682,992, Cl. 260-414.000.

Kawamoto, Birohisa, to RCA Corporation. Microwave apparatus using multiple avalanche diodes operating in the anomalous mode. 3,683,298, Cl. 331-107.00r.

Kawamura, Toshiki; and Ohneda, Tohru, to Kabushiki Kaisha Hattori Tokeiten. Printing mechanism for calculating machine. 3,682,376, Cl. 235-58.00p.

Kawasaki Jukogyo Kabushiki Kaisha: *See*—
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Kawasaki Jukogyo Kabushiki Kaisha (Kawasaki Heavy Industries, Ltd.): *See*—
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Kayser, Allan J. Fuel valve locking device. 3,682,267, Cl. 180-114.000.

Kazeef, Michel G., to Pechiney Ugine Kuhlmann. Cooling water chamber for vertical casting frame. 3,682,235, Cl. 164-283.000.

Kazmina, Natalia Borisovna: *See*—
Knuniants, Ivan Ljudvigovich; German, Lev Solomonovich; and Kazmina, Natalia Borisovna, 3,682,917.

Keddeinis, Heinrich; Lenz, Arnold; Bleh, Otto; and Termin, Erich, to Dynamit Nobel Aktiengesellschaft. Silica gel-containing magnesia insulating composition. 3,682,828, Cl. 252-63.200.

Kedzior, Andrzej; Horoszko, Jan; Olszowski, Tadeusz; Romaniec, Edward; and Zaremba, Stanislaw, to Przedsubiorstuo Projektovania i Wyposazania Odlewni Prodlew-Oddzial Projektowy. Method of continuous and controlled preparation of the liquid self-hardening mulding sand and the installation for its application. 3,682,448, Cl. 259-148.000.

Keefer, Richard Mackay, to Electrocell Limited, mesne. Redox fuel cell regenerated with sugar. 3,682,704, Cl. 136-86.00r.

Kehl, Lawrence Joseph; Triner, Irvin Richard; and Janis, Robert Gerald, to Bunker-Ramo corporation, The. Pancake making machine. 3,683,150, Cl. 219-200.000.

Kelkheim, Taunus: *See*—
Radscheit, Kurt; Kelkheim, Taunus; Fritsch, Werner; Neuenhain, Taunus; Haede, Werner; Stache, Ulrich; Hofheim, Taunus; and Lindner, Ernst, 3,682,891.

Kellard, Juliet. Needle feed mechanism for sewing machines. 3,682,120, Cl. 112-218.00r.

Kelly, Cornelius James Noel, to Ensign-Bickford Company, The. Explosive particles coated with a water-soluble ionic dye. 3,682,725, Cl. 149-9.000.

Kelly, Joseph L., Jr.; and Woods, Henry B., to Hughes Tool Company. Rotary-percussion gang drill with circumferentially floating offset bits. 3,682,258, Cl. 175-96.000.

Kelly, William. Shielded heavy duty cable connector. 3,683,315, Cl. 339-42.000.

Kelsen, Arthur F. Vaginal applicator. 3,682,176, Cl. 128-229.000.

Kelso Marine, Inc.: *See*—
Thatcher, Russell S.; and Linam, Richard L., 3,681,926.

Kempson, George C.; and Gilbert, Arthur N., to Monsanto Company. Convertible athletic field. 3,682,476, Cl. 273-25.000.

Kendall Company, The: *See*—
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Kennedy, Alice W.: *See*—
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Kennedy, William A.: *See*—
Cory, Terry S.; and Kennedy, William A., 3,683,390.

Kent, Richard T.; and Koch, Robert M., to Addressograph-Multigraph Corporation. Liquid collecting apparatus. 3,682,077, Cl. 95-89.00r.

Kenworthy, Derek: *See*—
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Kerimov, Niyazi Abdulkasim Ogly: *See*—
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Kerr, George T., to Mobil Oil Corporation. Zeolite esters. 3,682,996, Cl. 260-448.00c.

Kerschner, James J., to Acme Highway Products Corporation. Sealing member. 3,682,053, Cl. 94-18.000.

Kersten, Hilde: *See*—
Siggel, Erhard; Kersten, Hilde; and Meyer, Gerhard, 3,682,929.

Kesling, Keith K., to General Motors Corporation. Adjustable door shelving. 3,682,521, Cl. 312-138.00a.

Kessler, Dayton F.: *See*—
Ankeny, Jay H.; Foddy, Harold W.; and Kesaler, Dayton F., 3,682,044.

Kessler, Georg: *See*—
Wagner, Gerhard; Kroll, Friedrich; Gleich, Horst; and Kessler, Georg, 3,682,126.

Keur, Robert I.; Miller, Sandra; and Dahl, Henry A., to Dick, A. B., Company. Method and apparatus for control of ink drop formation. 3,683,396, Cl. 346-1.000.

Keusch, Siegfried: *See*—
Gebhardt, Fritz; Kaltenmark, Otto; Reich, Kurt; and Keusch, Siegfried, 3,682,751.

Key, Kurt: *See*—
Seng, Florin; Key, Kurt; and Metzger, Karl Georg, 3,682,906.

Keyser, Charles D.: *See*—
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Keystone Industries, Inc.: *See*—
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Khaja, Farees U.: *See*—

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Kharasch, Arnold S.: *See—*
Dicus, Allen B., Jr.; Kharasch, Arnold S.; and Lavin, Sheldon, 3,682,063.

Khelghatian, Habet M.; and Poppe, Wassily, to Avisun Corporation. Metallized polyolefin substrates containing maleic resins. 3,682,693, Cl. 117-138.80e.

Khelghatian, Habet M.; Poppe, Wassily; and West, Harry J., to Avisun Corporation. Metallized polyolefin substrates containing terpenephenolic resins. 3,682,695, Cl. 117-138.80e.

Khlebutin, Gleb Sergeevich, to Permsky ordena Trudovogo Krasnogo Znameni Gosudarstvenny Universitet imeni A.M. Device for demonstration of chess play. 3,683,363, Cl. 340-323.000.

Kholodova, Galina Vasilievna: *See—*
Kulbakh, Valter Osvaldovich; Kholodova, Galina Vasilievna; and Sveshnikov, Jury Fedorovich, 3,683,071.

Kibino, Yasuaki: *See—*
Ayano, Hiroyoshi; Kibino, Yasuaki; Sato, Hiroyoshi; Ohta, Yukihiko; and Fukuhara, Minoru, 3,683,303.

Kiceniuk, Taras. Rangefinder and method. 3,682,070, Cl. 95-44.00c.

Kienzie Apparate GmbH: *See—*
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Kiessling, Rudolf H.: *See—*
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Kildishev, Vasily Semenovich: *See—*
Konovalov, Boris Leonidovich; Kildishev, Vasily Semenovich; Kaplunov, Vadim Borisovich; Chigirinsky, Alexandr Abramovich; Glider, Evgeny Khaimovich; Gradov, Oleg Borisovich; Karpman, David Bentsionovich; Kariashevsky, Pavel Yakovlevich; and Cheremisov, Iva Yakovlevich, 3,683,220.
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Kilgore, Colin H.: *See—*
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Kim, Tae Y. Jointed structural member. 3,681,888, Cl. 52-732.000.

Kimball, Jack E., to Borg-Warner Corporation. Heat press machine and method. 3,682,748, Cl. 156-499.000.

Kimberly-Clark Corporation: *See—*
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Palenske, Carlton L.; and Marks, Lawrence E., 3,681,795.
Stieg, Bernard O., 3,681,904.
Truman, Charles L., 3,681,785.

Kimura, Ichiro; Sugiyama, Hironari; and Kado, Masaru, to Kumiai Chemical Industry Co., Ltd. Herbicidal composition. 3,682,616, Cl. 71-93.000.

Kimura, Mutsumi: *See—*
Miyama, Hajime; Harumiya, Noriho; Nakao, Mituru; Kimura, Mutsumi; Ito, Isao; and Ohgushi, Katunori, 3,682,800.

Kimura, Tsuguo: *See—*
Shimizu, Sakae; and Kimura, Tsuguo, 3,682,629.

King, Erwin D.; and Gibson, Aaron F., Jr. Punch assembly for pipe bender. 3,681,965, Cl. 72-389.000.

King, John H.; and Larson, Russell W., to Litton Business Systems, Inc. Information gathering system. 3,683,156, Cl. 235-61.11c.

Kinley, John C.; Floeck, Wayne D.; and Agee, Charles W., to Kinley, John C.; d/b/a Kinley, J. C. Apparatus for forming a record on a tape. 3,683,408, Cl. 346-77.00r.

Kinley, John C.; d/b/a Kinley, J. C.: *See—*
Kinley, John C.; Floeck, Wayne D.; and Agee, Charles W., 3,683,408.

Kinsella, Thomas P.; and De Vittori, Joseph M., to Sherwin-Williams Company, The. Cathodic treatment of an electrocoating bath. 3,682,806, Cl. 204-181.000.

Kint, Louis F., to Wrightway Mfg. Co. Liquid aerating and spraying device. 3,682,392, Cl. 239-428.500.

Kipple, Harry P.; Cozzarin, Virgil J.; and Kapperman, Francis C.; deceased (by Kapperman, Dorothy M.; administratrix), to Westinghouse Electric Corporation. Temperature control device. 3,683,154, Cl. 219-412.000.

Kirchner, Carl Otto, to Leggett and Platt, Incorporated. Spring assembler clamp assembly. 3,682,206, Cl. 140-92.800.

Kirian, Christopher C.: *See—*
McClellan, Ralph E.; and Kirian, Christopher C., 3,682,113.

Kirsch Company: *See—*
Ford, James A., 3,682,226.

Kishino, Shigeo; Yamada, Yasuo; Kudamatsu, Akio; Sumi, Shozo; and Shiokawa, Kozo, to Farbenfabriken Bayer Aktiengesellschaft. O-alkyl-O-alkylphenyl-S-alkoxyethyl phosphorothiolates. 3,683,053, Cl. 260-950.000.

Kitamura, Takuya; Haruna, Takashi; and Toyoda, Minoru, to Nissan Motor Company, Limited. Maximum acceleration indicator. 3,682,001, Cl. 73-492.000.

Kitamura, Toshinori; Ajichi, Yoshio; Miyata, Itaru; and Ono, Masayushi, to Nichicon Capacitor Limited. Ceramic capacitor. 3,683,244, Cl. 317-261.000.

Kleen, Bergert G., to International Business Machines Corporation. Printed circuit spark gap protector for cathode ray tube. 3,683,228, Cl. 313-318.000.

Klein, Melvin S.: *See—*
Grobert, Paul H.; Adams, Robert T.; and Klein, Melvin S., 3,683,165.

Kleinfelder, Walter J.: *See—*
Gukelberger, Thomas F., Jr.; and Kleinfelder, Walter J., 3,682,729.

Kleinschnitz, Andrew J., to Delta Data Systems Corporation. Video display terminal with automatic paging. 3,683,359, Cl. 340-324.00a.

Klemm, Gunter. Rotary percussive drill and method. 3,682,260, Cl. 175-92.000.

Klesper, Hugo: *See—*
Busse, Oswald; and Klesper, Hugo, 3,682,322.

Klimek, Boleslaw, to Berg Manufacturing Company, The. Hand control valve. 3,682,438, Cl. 251-256.000.

Klimek, Norbert, to English Numbering Machines Limited. Tensioning device. 3,682,413, Cl. 242-156.200.

Klimstra, Paul D., to Searle, G. D., & Co. 17-oxygenated 7a-methyl 2,3-epithio-5a-androstanes. 3,682,898, Cl. 260-239.500.

Klimstra, Paul D. -1-adamantylmethylamines. 3,682,922, Cl. 260-268.0pc.

Klinger, Robert H., Sr.: *See—*
Null, Cecil A.; and Klinger, Robert H., Sr., 3,682,036.

Klochner Humboldt-Deutz Aktiengesellschaft: *See—*
Wagner, Gerhard; Kroll, Friedrich; Gleich, Horst; and Kessler, Georg, 3,682,126.

Klockner-Humboldt Aktiengesellschaft: *See—*
Hoyer, Manfred; and Welke, Helmut, 3,682,019.

Klose, Robert: *See—*
Mitchell, William A.; and Klose, Robert, 3,682,648.

Kloth, James Albert: *See—*
Vigeant, George Henry; and Kloth, James Albert, 3,683,319.

Knappstein, Johannes, to Carl Still, Firma. Free fall charging apparatus for a coking furnace. 3,682,339, Cl. 214-35.00r.

Knapsack Aktiengesellschaft: *See—*
Haas, Hans, 3,683,028.

Knechtges, Donald P.: *See—*
Mikofalvy, Bela K.; and Knechtges, Donald P., 3,682,871.

Knight, Lindsay Charles. Thin, self-supporting, ductile, plastic target sheet. 3,682,478, Cl. 273-102.20s.

Knochel, William J.; and Werner, Leo C., to Westinghouse Electric Corporation. Method of seasoning crystalline ceramic discharge lamps. 3,682,525, Cl. 316-26.000.

Knope, Walter R.: *See—*
Walstad, Dennis C.; and Knope, Walter R., 3,683,237.

Knowles, Richard N., to Du Pont de Nemours, E. I., and Company. Certain 2-(4-substituted cyclohex-lamino)-2- oxazolines. 3,682,947, Cl. 260-307.00f.

Knowles, Richard N., to Du Pont de Nemours, E. I., and Company. Certain 1-aryl-3-(4-substituted cyclohexyl) ureas and thioureas. 3,683,001, Cl. 260-465.00d.

Knowles, Richard N., to Du Pont de Nemours, E. I., and Company. Alkyl-N-(4-alkyl- or cycloalkyl-methyl cyclohexyl)carbamates. 3,683,007, Cl. 260-468.00b.

Knowles, Richard N., to Du Pont de Nemours, E. I., and Company. N-Acetyl-4-cycloalkloxycycloherylamides. 3,683,022, Cl. 260-561.00r.

Knowles, Richard N., to Du Pont de Nemours, E. I., and Company. Certain bi-or tricycloalkyl methylbenzenes. 3,683,040, Cl. 260-668.00r.

Knox, Sidney G. Loran receiver-indicator. 3,683,383, Cl. 343-103.000.

Knuniants, Ivan Ljudvigovich; German, Lev Solomonovich; and Kazmina, Natalia Borisovna, to Institut Elemenloorganicheskikh Soedineny Akademii SSSR. Method for producing 5-fluorouracil. 3,682,917, Cl. 260-260.000.

Kobayashi, Akiyoshi, to Toyoda Koki Kabushiki Kaisha. Head stock device for selective use between the dead center drive and the live center drive. 3,681,879, Cl. 51-237.000.

Kobayashi, Kazutsugu; Igarashi, Yoshiaki; and Matsumoto, Hisayuki, to Matsushita Electric Industrial Co., Ltd. Directly driven turntable apparatus for phonograph records. 3,683,248, Cl. 318-138.000.

Kobayashi, Tatsuo. Power supply filter for noise suppression. 3,683,271, Cl. 323-76.000.

Koch, Robert M.: *See—*
Kent, Richard T.; and Koch, Robert M., 3,682,077.

Kochanny, Gerald L., Jr., to Dow Chemical Company, The. Method of preparing mercaptans using high energy radiation. 3,682,804, Cl. 204-162.0he.

Kochs Adlernahmaschinen Werke OG: *See—*
Junemann, Hubert, 3,682,119.

Kocian, Zdenfk: *See—*
Jindra, Karel; Pavlik, Kamil; Kas, Josef; Kocian, Zdenfk; Hanjs, Vaciav; and Tyls, Jaruslav, 3,681,907.

Koeda, Takemi: *See—*
Nishio, Motohiro; Ito, Teiichiro; Koeda, Takemi; and Shibata, Uichi, 3,682,899.

Koenig, John E.: *See—*
Baugh, John C.; Koenig, John E.; and Mc Cuskey, James R., 3,682,350.

Koenig, Karl-Heinz, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. Trisubstituted hydrazines. 3,683,026, Cl. 260-583.00b.

Koesler, Erwin, to Siemens Aktiengesellschaft. Fixed value storer. 3,683,342, Cl. 340-174.0sp.

Koga, Yasushi; Kozuka, Hirotsugu; and Tauchi, Shoji, to Hitachi, Ltd. Method of vapor growth of a semiconductor crystal. 3,682,699, Cl. 117-201.000.

Kohen, Nuri: *See—*
Yardney, Michel N.; and Kohen, Nuri, 3,682,706.
Kohinoor, Waldes Inc.: *See—*
Janecka, Gustav, 3,681,839.
Kohl, Willibald F.; Sourby, John C.; and Ellinger, Rudolph H., to Stauffer Chemical Company. Process for the pasteurization of egg whites. 3,682,660, Cl. 99-161.000.
Kohler, Armin: *See—*
Radlmann, Eduard; Kohler, Armin; Konig, Klaus; and Nischk, Gunther, 3,682,861.
Kohler, Robert: *See—*
Johannsen, Peter; and Kohler, Robert, 3,682,218.
Kojima, Sakusaburo: *See—*
Kosui, Tsuguo; Seki, Masahiro; Takamatsu, Shuji; and Kojima, Sakusaburo, 3,682,196.
Kolaian, Jack H., to Texaco Inc. Drilling fluid. 3,682,820, Cl. 252-8.50c.
Kolaian, Jack H., to Texaco Inc. Drilling fluid. 3,682,821, Cl. 252-8.50c.
Kolar, Vladimir: *See—*
Peschl, Ervin; Malasek, Frantisek; and Kolar, Vladimir, 3,681,944.
Kolyer, John M.; and Kveglis, Albert A., to Allied Chemical Corporation. Monofunctionally-blocked tris(2-hydroxyalkyl) isocyanurates and polyesters thereof. 3,683,048, Cl. 260-868.000.
Konan Camera Laboratory Company Limited: *See—*
Okano, Takeshi; and Nagai, Masakazu, 3,682,055.
Konig, Klaus: *See—*
Radlmann, Eduard; Kohler, Armin; Konig, Klaus; and Nischk, Gunther, 3,682,861.
Konishi, Kunihiko: *See—*
Fujita, Tadao; Wake, Makoto; and Konishi, Kunihiko, 3,682,668.
Konovalov, Boris Leonidovich; Kildishev, Vasily Semenovich; Kaplunov, Vadim Borisovich; Chigirinsky, Alexandr Abramovich; Glider, Evgeny Khaimovich; Gradov, Oleg Borisovich; Karpman, David Bentsionovich; Kariashevsky, Pavel Yakovlevich; and Cheremisov, Iva Yakovlevich. Rotor for an electrical machine. 3,683,220, Cl. 310-183.000.
Konovalov, Boris Leonidovich; Spivak, Boris Volkovich; Glider, Evgeny Khaimovich; Gradov, Oleg Borisovich; Karpman, David Bentsionovich; Kildishev, Vasily Semenovich; and Stanislavsky, Lazar Yankelevich. Stator of an electric machine. 3,683,221, Cl. 310-25.000.
Kontz, Robert F.: *See—*
Criss, Donald H.; and Kontz, Robert F., 3,682,026.
Korber, Hans. Adjustable beds. 3,681,792, Cl. 5-67.000.
Korenblit, Izya Yakovlevich: *See—*
Kaplansky, Arkady Fridmanovich; Korenblit, Izya Yakovlevich; Frenkel, Andrei Filiprovish; and Zakhariev, Alexandr Ivanovich, 3,682,570.
Korikovsky, Petr Konstantinovich; Kulichkov, Jury Semenovich; and Petukhov, Evgeny Dmitrievich, to Vsesojuzny Nauchno-Issledovatelsky Institut Leakogo i Textilnogo Mashinostroenia. Spindle headpiece for thread spinning and twisting apparatus. 3,681,909, Cl 57-106.000.
Korlow Corporation: *See—*
Orlowski, Gerald J., 3,682,214.
Korobanov, Vladimir Nikolaevich: *See—*
Mitkevich, Eduard Mikhailovich; Korobanov, Vladimir Nikolaevich; Babkina, Vera Jurievna; Shakhova, Alexandra Filippovna; Mefodiev, Vladimir Nikolaevich; and Gaidash, Nikolai Ivanovich, 3,682,602.
Kosti, Carl M. Radio sensitive film. 3,682,638, Cl. 96-76.000.
Kosui, Tsuguo; Seki, Masahiro; Takamatsu, Shuji; and Kojima, Sakusaburo, to Mitsubishi Jukogyo Kabushiki Kaisha Isbukawajima-Harima Jukogyo Kabushiki Kaisha and Yuken Kogyo Company Ltd. Valve position indicator and hydraulic system used therewith. 3,682,19, Cl. 137-553.000.
Kotera, Noboru: *See—*
Hitomi, Teiichi; Kotera, Noboru; and Sakamoto, Hitoshi, 3,682,833.
Kottsieper, Edward: *See—*
Haas, Edgar; and Kottsieper, Edward, 3,682,029.
Kovacs, Geza L. Treatment of waste HCl pickle liquor. 3,682,592, Cl. 23-154.000.
Kozuka, Hirotsugu: *See—*
Koga, Yasushi; Kozuka, Hirotsugu; and Tauchi, Shoji, 3,682,699.
Kraft, Joseph K., to Westinghouse Electric Corporation. Apparatus for guiding a conveyor. 3,682,289, Cl. 198-16.000.
Kraftoo Corporation: *See—*
Jurczak, Henry E.; and Olney, Edward S., 3,682,659.
Kralowetz, Bruno; and Heimel, Othmar, to GFM Gesellschaft fur Fertigungstechnik and Maschinenbau Aktiengesellschaft. Forging machine. 3,681,966, Cl. 72-402.000.
Kramer, Bruno: *See—*
Czekay, Arno; Kramer, Bruno; and Kaiser, Karl, 3,682,877.
Krapf Rudolf: *See—*
Gross, Franz; and Krapf Rudolf, 3,683,209.
Krauch, Carl Heinrich; and Hoffmann, Horst, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. Photopolymerizable compositions containing oxyphosphoranes. 3,682,808, Cl. 204-159.150.
Krause, Gerhard, to Fernseh GmbH. Abrasion resistant recording head. 3,683,126, Cl. 179-100.20c.
Krause, Hans-Juergen; and Rindsfuesser, Johannes, to National Cash Register Company, The. Tens transfer mechanism. 3,682,379, Cl. 235-137.00a.
Krause, Herbert K. Self-unloading vehicle. 3,682,333, Cl. 214-82.000.
Krause, Irving A.: *See—*
Weinberg, Murray; and Krause, Irving A., 3,683,279.
Krauss, Wallace J. Rope brake. 3,682,276, Cl. 188-65.300.
Kravetz, Louis; and Ferrante, Gerald R., to Shell Oil Company. Process of removing polyvinyl alcohol containing size. 3,682,583, Cl. 8-138.000.
Krebs, Adolf W.: *See—*
Henry, Malcolm C.; and Krebs, Adolf W., 3,683,090.
Kreider, Eunice M., to Searle, G. D., & Co. 1-[β-(1-adamantyloxy)halophenethyl]imidazoles and congeners. 3,682,951, Cl. 260-309.000.
Krejcir, Oldrich, to Autobrzdy, narodni podnik. Pneumatic spring. 3,682,464, Cl. 267-65.000.
Kressley, Leonard J.: *See—*
Frevel, Ludo K.; and Kressley, Leonard J., 3,682,585.
Kroeger, Paul. Numeric readout devices. 3,681,917, Cl. 58-125.00b.
Kroger, Alfon Fedorovich; and Stabulniek, Yan Petrovich, to Fiziko-Energeticheaky Institut an Latviiskov SS. Three-phase static converter with a stabilized output voltage. 3,683,260, Cl. 321-3.000.
Kroll, Friedrich: *See—*
Wagner, Gerhard; Kroll, Friedrich; Gleich, Horst; and Kesaler, Georg, 3,682,126.
Kroschel, Heinz: *See—*
Heinzelmann, Walter; Flach, Karl-Egon; Vob, Alfred; and Kroschel, Heinz, 3,682,727.
Krueger, John W. Presensitized photolithographic plate having diazo stabilized aluminum base. 3,682,636, Cl. 96-75.000.
Kruse, Werner, to Daimler-Benz Aktiengesellschaft. Measurement-sensing device for determining a rotational speed or rotational speed change, preferably of vehicle wheels. 3,683,219, Cl. 310-168.000.
Kuba, Jaromir: *See—*
Buran, Vojtech; Kuba, Jaromir; Uncovsky, Adolf; and Zouhar, Karel, 3,683,178.
Kubo, Keishi; and Sakai, Kiyoshi, to Kabushiki Kaisha Ricoh. Heat-sensitive stencil sheet. 3,682,763, Cl. 161-159.000.
Kubota, Takashi: *See—*
Yoda, Naoya; Kubota, Takashi; Kurihara, Masaru; Dokoshi, Noriaki; and Yoshihi, Toshiya, 3,682,860.
Kubota Takko Kabushiki Kaisha: *See—*
Fujita, Tadao; Wake, Makoto; and Konishi, Kunihiko, 3,682,668.
Kudamatsu, Akio: *See—*
Kishino, Shigeo; Yamada, Yasuo; Kudamatsu, Akio; Sumi, Shozo; and Shiokawa, Kozo, 3,683,053.
Kuhlman, Harvey G. Food applicator. 3,682,106, Cl. 107-1.000.
Kukucka, William P.: *See—*
Turner, Lyman H.; and Kukucka, William P., 3,682,328.
Kulbakh, Valter Osvaldovich; Kholodova, Galina Vasilievna; and Sveshnikov, Jury Fedorovich, to Leniasgradsky nauchno-issledovatelsky Institut. Process for producing sodium salt of levorin. 3,683,071, Cl. 424-119.000.
Kulichkov, Jury Semenovich: *See—*
Korikovsky, Petr Konstantinovich; Kulichkov, Jury Semenovich; and Petukhov, Evgeny Dmitrievich, 3,681,909.
Kuller, Lawrence; and Jerson, Sidney N., to Astrocon Corporation. Communication system for binary coded data. 3,683,277, Cl. 325-30.000.
Kumiai Chemical Industry Co., Ltd.: *See—*
Kimura, Ichiro; Sugiyama, Hironari; and Kado, Masaru, 3,682,616.
Kunkel, Ernst, to Guenther Wagner Pelikan-Werke. Transfer set incorporating colour reaction sheets. 3,682,681, Cl. 117-36.200.
Kuntschik, Lawrence F.; and Edwards, Robert S., to Texaco Inc. O-polyalkoxylated high molecular weight-n alkanone and N-alkanal oximes. 3,683,024, Cl. 260-566.0ae.
Kunzle, Franz Martin: *See—*
Schmutz, Jean; Hunziker, Fritz; and Kunzle, Franz Martin, 3,683,084.
Kureha Kagaku Kogyo Kabushiki: *See—*
Okuda, Kensuke; Yoshida, Tadaaki; and Sugawara, Kastuyuki, 3,682,595.
Kurihara, Masaru: *See—*
Yoda, Naoya; Kubota, Takashi; Kurihara, Masaru; Dokoshi, Noriaki; and Yoshihi, Toshiya, 3,682,860.
Kurokawa, Junki: *See—*
Arai, Fumiaki; Ohta, Wasaburo; Kurokawa, Junki; Usui, Noriyuki; Shimizu, Sakae; and Tanaka, Testsuo, 3,682,632.
Kusters, Eduard; Takriti, Nassir; and Quoos, Kurt. Apparatus for continuously dyeing textile webs. 3,681,945, Cl. 68-5.00d.
Kuszynski, Gregory G., to American Safety Equipment Corporation. Safety restraint system retraction device. 3,682,412, Cl. 242-107.400.
Kuyt, Cornelis, to de Staat der Nederlanden Ten Deze Verteginwoordigd Door de Directeur-Generaal der Posterijen Telegrafie en Telefonie. First-in first-out storing device for postal documents. 3,682,473, Cl. 271-68.000.
Kuzmik, John J.: *See—*
Brown, Sharon D.; D'Ottavio, Eugene D.; Kuzmik, John J.; and Grunwald, John J., 3,682,786.
Kveglis, Albert A.: *See—*
Kolyer, John M.; and Kveglis, Albert A., 3,683,048.

Kyowa Hakko Kogyo Co., Ltd.: *See—*
Kawai, Masanobu; and Mukai, Noboru, 3,682,778.
Nara, Takashi; Misawa, Masanaru; and Okachi, Ryo, 3,682,777.
Sakurai, Katumi; and Odajima, Kenji, 3,682,789.

La Metallo-Chimique S.A.: *See—*
Dierckx, Ludovicus Maria; Feron, Denis Lucian; and Guns, Karel, 3,682,623.

La Pan, Raymond D. Product dryer. 3,681,856, Cl. 34-191.000.

Lachiche, Julien Henri, to Societe Novacel. Device for the continuous manufacture of artificial sponges. 3,682,578, Cl. 18-4.00b.

Lacourrege, Michel, to Saint-Gobain, mesne. Batch material for vitreous manufactures. 3,682,666, Cl. 106-52.000.

Ladco Enterprises Limited: *See—*
Rausing, Gad Anders, 3,682,097.

Laing, Nikolaus. Means for preventing the formation of ice, particularly on roads. 3,683,152, Cl. 219-213.000.

Lamin, Vladimir Ivanovich: *See—*
Solntsev Viktor Gavrilovich; Manuilov, Jury Grigorievich; Karataev, Gury Sergeevich; Podborsky, Leonid Ermolaevich; Mikhailov, Pavel Mikhailovich; Tsapsky, Alexandr Zakharovich; Milov, Vladimir Gennadievich; Saikonen, Evert Alexandrovich; Gubanov, Vadim Gergievich; Olkhovsky, Jury Fedorovich; Naret, Grigory Borisovich; Garbuzov, Zalman Eremeevich; Balaklo, Viktor Nikolaevich; Griffin, Evgeny Pavlovich; Smirnov, Alexandr Fedorovich; Mutushev, Gavrill Akhmetovich; Smirnov, Leonid Nikolaevich; Livshits, Lev Grgorievich; and Lamin, Vladimir Ivanovich, 3,681,863.

Lamort, Pierre Louis. Apparatus for preparing paper pulp or any other product of a similar nature, from bales of cellulose or raw materials for recovery such as waste paper. 3,682,398, Cl. 241-46.170.

Lamp, William F.: *See—*
Weisselberg, Edward B.; Worden, George M., Sr.; Lamp, William F.; and Lane, Alexander M., 3,681,855.

Lamson, James E.; and Nametz, Richard C., to Michigan Chemical Corporation. Flame retardant nylon-containing material. 3,682,692, Cl. 117-137.000.

Lanahan, John H., to Mohawk Industrial Laboratories, Inc. Disappearing punch. 3,682,033, Cl. 83-522.000.

Lancaster, Arthur W., to Hi-Way Safti Signal Manufacturing Corporation. Safe-to-pass indicator having portions of indicia flashingly illuminated. 3,683,330, Cl. 340-107.000.

Lancy Laboratories Inc., mesne: *See—*
Lancy, Leslie E., 3,682,701.

Lancy, Leslie E., to Lancy Laboratories Inc., mesne. Integrated waste water treatment for reusage after cyanide type plating. 3,682,701, Cl. 134-13.000.

Land, Edwin H., to Polaroid Corporation. Novel photographic products and processes. 3,682,637, Cl. 96-76.000.

Landau, Leo: *See—*
Schoen, William; and Landau, Leo, 3,682,990.

Landen, William James, to Eyelet Speciality Company. Safety closure device. 3,682,343, Cl. 215-9.000.

Landen, William James. Safety closure device. 3,682,348, Cl. 215-9.000.

Landers, Adrian L.; and Byrd, Commodore B., to A.D.C.O. Fmg. Co., Inc. Tree harvesting method and apparatus. 3,682,210, Cl. 144-2.00z.

Landsness, Clifford A.: *See—*
Shively, Harmon G.; and Landsness, Clifford A., 3,681,877.

Lane, Alexander M.: *See—*
Weisselberg, Edward B.; Worden, George M., Sr.; Lamp, William F.; and Lane, Alexander M., 3,681,855.

Langmead, Edmund Clarence, Jr.: *See—*
Pieper, Charles Joseph; and Langmead, Edmund Clarence, Jr., 3,682,460.

Langsenkamp, F. H., Co.: *See—*
Happel, Hermann E., 3,682,341.

Laos, Ivar: *See—*
Baran, John S.; and Laos, Ivar, 3,682,986.

Lapaich, Michael W., to Clark Equipment Company. Retractable latching mechanism. 3,682,432, Cl. 248-361.00r.

Lapinas, Zigmas J.; and Wong, Moses See Sum. Fluidic oscillator. 3,682,189, Cl. 137-81.500.

Laporte Industries Limited: *See—*
Jenkins, Victor F.; Newton, Geoffrey P.; and Beeken, Michael J., 3,682,865.

Laridon, Urbain Leopold; Delzenne, Gerard Albert; Poot, Albert Lucien; and Peeters, Hogo Karel, to Gevaert-Agfa N.V. Photopolymerization of ethylenically unsaturate organic compounds. 3,682,642, Cl. 96-115.00r.

Larsen, Tor G.: *See—*
Johannsmeier, Karl-Heinz; Stoft, Paul E.; and Larsen, Tor G., 3,683,195.

Larson, Russell W.: *See—*
King, John H.; and Larson, Russell W., 3,683,156.

Larson, Theodore L.: *See—*
Pouli, Dirk; and Larson, Theodore L., 3,682,709.

Latash, Jury Vadimovich: *See—*
Paton, Boris Evgenievich; Medovar, Boris Izrailevich; Bondarenko, Oleg Petrovich; Latash, Jury Vadimovich; Baglai, Vitaly Mikhailovich; and Shirshov, Vladimir Grigorievich, 3,682,622.

Laurent, Francois Rene: *See—*
Cook, Gordon Henry; and Laurent, Francois Rene, 3,682,534.

Lauster, Frederick L., to Cameo, Inc. Liquid dentifrice. 3,683,065, Cl. 424-57.000.

Lavanant, Pierre: *See—*
Jacob, Jean-Baptiste; and Lavanant, Pierre, 3,683,162.

Lavin, Sheldon: *See—*
Dicus, Allen B., Jr.; Kharasch, Arnold S.; and Lavin, Sheldon, 3,682,063.

Law, Derek A.: *See—*
Braid, Milton; and Law, Derek A., 3,682,980.

Law, Derek A., to Mobil Oil Corporation. Complex nitrogen-containing aromatic borates as stabilizers for organic compositions. 3,682,935, Cl. 260-296.00b.

Lawrenson, Jack: *See—*
Loukes, David Gordon; and Lawrenson, Jack, 3,682,611.

Lawson, Almon L.: *See—*
Fletcher, Earl B.; and Lawson, Almon L., 3,682,360.

Lawson Products, Inc.: *See—*
Morancy, William F., 3,682,731.

Le Blanc, Clifford H.: *See—*
Le Blanc, George T.; Le Blanc, Clifford H.; Balmer, Thomas A.; and Hurst, Bobbie G., 3,681,788.

Le Blanc, George T.: *See—*
Le Blanc, George T.; Le Blanc, Clifford H.; Balmer, Thomas A.; and Hurst, Bobbie G. (said Balmer and said Hurst assors. to said), 3,681,788.

Le Blanc, George T.; Le Blanc, Clifford H.; Balmer, Thomas A.; and Hurst, Bobbie G., said Balmer and said Hurst assors. to said Le Blanc, George T. Portable showers. 3,681,788, Cl. 4-147.000.

Le Blanc, John R., to Alton Box Board Company and Monsanto Company. Rigid-when-wet boxboard. 3,682,762, Cl. 161-133.000.

Le Blanc, Leo J.; and Foerster, Wallace C. Repair of wire fabric. 3,681,841, Cl. 29-401.000.

Le Douarec, Jean-Claude: *See—*
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Lear Siegler, Inc.: *See—*
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Leas, Lawrence E., to Leas Brothers Development Corporation. Cylindrical rotor internal combustion engine. 3,682,143, Cl. 123-8.430.

Leas, Lawrence E.; Leas, Robert L.; and Johnson, Cecil J., to Leas Brothers Development Corporation. Gasifier and desulfurizer. 3,682,591, Cl. 23-150.000.

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Lechner, Thomas J., Jr., to Johnson Service Company. Apparatus and method for sensing the position of a surface. 3,682,191, Cl. 137-81.500.

Lecoeur, Jacques, to Eclair International. Interchangeable lenses camera mounting. 3,682,069, Cl. 95-44.00r.

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Lee, Charles Allen; Furbeck, Warren R.; Bartley, Thomas S.; and Beaty, Jeremy, to Canadian International Paper Company, mesne. Fibrous web. 3,682,761, Cl. 161-124.000.

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Lejdegard, Sixten H., to Bultfabriks Aktiebolaget. Self-tapping screw with drill means. 3,682,038, Cl. 85-41.000.

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Lemery, Raymond E.; and Gilmore, John G. Cutter tooth mounting for fine wear adjustment. 3,682,561, Cl. 408-153.000.

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Lewis, Morton. Phosphonate compositions. 3,682,988, Cl. 260-403.000.
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Liechti, Peter; Maeder, Erwin; Guglielmetti, Leonardo; and Siegrist, Emil, to Ciba-Geigy AG. Stilbene derivatives. 3,682,900, Cl. 260-240.0ca.
Liechti, Peter, to Ciba-Geigy AG. Bis-naphthoxazolyl-derivatives. 3,682,946, Cl. 260-307.00d.
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Lo, Mei-Kuo, to Johnson, S. C., & Son. Pressure actuated valve. 3,682,355, Cl. 222-94.000.
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Longley, Kermit D.; and Bernstein, Carl, to Witco Chemical Corporation. Polyurethanes derived from alkylene oxide adducts of trimethylol phenols and of polymers thereof. 3,682,845, Cl. 260-2.5ap.
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Lopez, Arnelson N. Nursing bottle formed by a housing and a rubber nipple. 3,682,344, Cl. 215-11.00r.
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Loricchio, Domingos, to Carborundum Company, The. Process for the production of cast irons. 3,682,625, Cl. 75-130.00r.
Loshbough, Richard C.; and Robaszkiewicz, Gerald D., to Reliance Electric Company. Backup controls for plural car elevator system. 3,682,275, Cl. 187-29.000.
Louderback, Allan L., to Baxter Laboratories, Inc. Liquid blood serum control standard. 3,682,835, Cl. 252-408.000.
Loukes, David Gordon; and Lawrenson, Jack. Treatment of hollow glass articles. 3,682,611, Cl. 65-182.000.
Lovatt, William John, to Acme Marls Limited. Supporting structures for use in firing pottery. 3,681,817, Cl. 25-153.000.
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Luethi, Christian; Biland, Hans-Rudolf; and Duennenberger, Max, to Ciba-Geigy AG. Bis-oxalic acid diamides for use as stabilizers. 3,683,020, Cl. 260-558.00r.
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Luttrall, James C. Lock and method of production therefor. 3,681,953, Cl. 70-141.000.

Lynch, Henry W., to Medical Engineering Corporation. Solid human prosthesis of varying consistency. 3,681,786, Cl. 3-1.000.

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Mac Phail, Larry S.; Ray, Harold; Smith, Oral P.; and Hall, Lee C., to Traffic Control Materials & Machines Corporation. Apparatus for applying a two-component epoxy resin marking composition. 3,682,054, Cl. 94-44.000.

MacDermid, Incorporated: *See—*
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Machatzke, Heinz; and Singer, Josef, to Farbenfabriken Bayer Aktiengesellschaft. Anthraquinone dyestuffs. 3,682,978, Cl. 260-372.000.

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MacManus, John. Apparatus for dispensing material on pastry and the like. 3,682,107, Cl. 107-27.000.

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Magerlein, Barney J., to Upjohn Company, The. Novel compounds related to lincomycin, a process for making the same and a process for converting them to lincomycin and lincomycin analogs. 3,682,884, Cl. 260-210.00r.

Mages, Karl; and Ulli, Hans, to Elektrodenfabrik Oerlikon Buehrle AG. Method for arc welding using individual pulse control for material detachment and acceleration. 3,683,149, Cl. 219-137.000.

Magg, Alfred; and Friedrich, Friedrichshafen, to Zahnradfabrik Friedrichshafen Aktiengesellschaf. Down-shifting transmission lock. 3,682,014, Cl. 74-336.000.

Magnusson, Bengt Gunnar; and Neovius, Theodor Gosta, to Telefonaktiebolaget L. M. Ericsson. Selector network with scanning and establishing function. 3,683,117, Cl. 179-18.0gf.

Mahanty, Bhaskar Chandra; and Mahn, Gustav, to Salzgitter Huttenwerk Aktiengesellschaft. Process and device for determining the oxygen concentration in metal melts. 3,681,972, Cl. 73-19.000.

Maher, Galeb H., to Sprague Electric Company. Low temperature fired rare earth-titanate ceramic body and method of making. 3,682,766, Cl. 161-196.000.

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Maier, Elmar, to Hilti Aktiengesellschaft. Cartridge explosion operated bolt setting gun for fastening iron chill plates. 3,682,364, Cl. 227-9.000.

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Malasek, Frantisek: *See—*
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Malon, Jean Pierre; and Adde, Joseph W., to Compagnie des Freins et Signaux Westinghouse and Societe Inter-Elec. Means for controlling and regulating the braking of vehicles. 3,682,512, Cl. 303-20.000.

Mamalis, Patrick; and Outred, Dennis James, to Bucham Group Limited. Di-hydro triazine derivatives. 3,682,912, Cl. 260-249.900.

Mancino, John J., to Hitemp Wires, Inc. Multi-strand electrical conductor. 3,683,103, Cl. 174-119.00c.

Mancy, Denise; Ninet, Leon; and Preud'Homme, Jean, to Rhone-Poulenc S.A. Antibiotic 18.631 RP. 3,682,886, Cl. 260-210.0ab.

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Margen, Peter Heinrich Erwin, to Aktiebolaget Atomenergi. Method and means for generating electricity and vaporising a liquid in a thermal power station. 3,681,920, Cl. 60-67.000.

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Marquardson, Kent F.; and Lewis, Daniel M., to Kennecott Copper Corporation. Electrolytic cell constructed for high circulation and uniform flow of electrolyte. 3,682,809, Cl. 204-275.000.

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Martin, Donald L., to General Electric Company. Sintered cobalt-rare earth intermetallic product and permanent magnets produced therefrom. 3,682,714, Cl. 148-31.570.

Martin, Donald L., to General Electric Company. Sintered cobalt-rare earth intermetallic product including samarium and lanthanum and permanent magnets produced therefrom. 3,682,715, Cl. 148-31.570.

Martin, Donald L.; and Benz, Mark G., to General Electric Company. Sintered intermetallic product of cobalt, samarium and cerium mischmetal and permanent magnets produced therefrom. 3,682,716, Cl. 148-31.570.

Martin, Henry; and Pissiotas, Georg, to Ciba Limited. Certain-3-(2-lower-alkoxy-5-pyridyl)-ureas. 3,682,934, Cl. 260-295.50d.

Martin, Peter G. Lumped component standing wave ratio indicators for radio frequency transmission lines. 3,683,274, Cl. 324-58.00r.

Martin, Robert Lanham, to Bell Telephone Laboratories, Incorporated and Evertz, Egon. Method of protecting data in a multiprocessor computer system. 3,683,418, Cl. 444-1.000.

Martin, Stephen J., to Robertshaw Controls Company, mesne. Alphanumeric message readout circuit. 3,683,365, Cl. 340-325.000.

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Martone, Ronald J.; Mueller, Peter G.; and Flis, Richard J., to Picker Corporation. Scintillation camera with removably subassembly. 3,683,180, Cl. 250-71.50s.

Marulic, Walter J., to Pullman Incorporated. Automatic hopper gate locker. 3,682,105, Cl. 105-282.00r.

Marx, Gunter H., to Bio-Cal Instrument Company. Dialyzer. 3,682,817, Cl. 210-22.000.

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Marzocchi, Alfred, to Owens-Corning Fiberglas Corporation. Tire construction featuring glass and organic cord carcass piles. 3,682,217, Cl. 152-356.000.

Marzocchi, Alfred; and Brown, Alfred Winsor, to Owens-Corning Fiberglas Corporation. Tire construction with improved reinforcement. 3,682,221, Cl. 152-357.000.

Mas, Joseph A. High-current apparatus for charging batteries. 3,683,256, Cl. 320-14.000.

Mas, Joseph A. Apparatus for charging batteries. 3,683,257, Cl. 320-31.000.

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Matsumoto, Kazuya, to Canon Kabushiki Kaisha. Holography with blocked object-beam light. 3,682,526, Cl. 350-3.500.
Matsunaga, Kenji; and Horiuchi, Michio, to Dai Nippon Insatsu Kabushiki Kaisha. Apparatus for stereographically photographing scene. 3,682,064, Cl. 95-188.000.
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Matsuoka, Michio; Masuyama, Takeshi; and Iida, Yoshio, to Matsushita Electric Industrial Co., Ltd. Voltage dependent resistors in a bulk type. 3,682,841, Cl. 252-518.000.
Matsushima, Akira, to Nippon Oil Seal Industry Co., Ltd. Sealing device. 3,682,488, Cl. 277-37.000.
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Matsushita, Shigenori; Sato, Fumitaka; Chujo, Hisao; and Horiike, Minori, to Tokyo Shibaura Electric Co., Ltd. Control devices for display apparatus. 3,683,360, Cl. 340-324.00a.
Matsuura, Hirokichi: *See—*
Sano, Keizo; Watanabe, Taigi; Tanaka, Michihiko; Ichikawa, Yoshimitsu; Kato, Koichi; and Matsuura, Hirokichi, 3,682,846.
Matthews, Joseph S., to Gulf Research & Development Company. Electrochemical reduction of aromatic compound. 3,682,791, Cl. 204-59.00r.
Matthews, Joseph S., to Gulf Research & Development Company. Electrochemical reduction of aromatic compounds. 3,682,794, Cl. 204-73.00r.
Mattis, John A., to Signetics Corporation. Integrated circuit bilateral current source. 3,683,270, Cl. 323-4.000.
Mau, Edith: *See—*
Mau, Kurt; and Seitz, August, 3,682,672.
Mau, Kathe: *See—*
Mau, Kurt; and Seitz, August, 3,682,672.
Mau, Kurt; deceased (by Mau, Kathe; and Mau, Edith; heirs); and Seitz, August, to FA.G. Siegle & Co. GmbH. Molybdenum red and molybdenum orange pigments and process of making the same. 3,682,672, Cl. 106-297.000.
Maurer, Albrecht: *See—*
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Maurer, Ruprecht: *See—*
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Mayer, Jurgen, to Interelectric AG. Balanced cylindrical coil for an electrical machine. 3,682,017, Cl. 74-573.000.
Maynard, John T., to Smith, A. O., Corporation. Dynamoelectric machine control circuit having current limiting means. 3,683,252, Cl. 318-331.000.
Mazzarella, Louis: *See—*
Ciampa, Fred A.; Serafini, Angelo; and Mazzarella, Louis, 3,681,794.
Mc Cuskey, James R.: *See—*
Baugh, John C.; Koenig, John E.; and Mc Cuskey, James R., 3,682,350.
McAlister, Roy E. Microwave puffing of cereal grain and products made therefrom. 3,682,651, Cl. 99-83.000.
McAllister, Edward W.: *See—*
Allen, Paul V.; and McAllister, Edward W., 3,681,997.
McCain, Robert L.: *See—*
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McClellan, Ralph E.; and Kirian, Christopher C., to Meilink Steel Safe Company. Deal drawer. 3,682,113, Cl. 109-19.000.
McCord, Donald M., to Phillips Fibers Corporation. Surface treating apparatus. 3,681,969, Cl. 73-7.000.
McCracken, John Raymond: *See—*
Chaiken, Malcolm; and McCracken, John Raymond, 3,681,951.
McCusker, Joseph Henry: *See—*
Perlman Stuart Stanley; and McCusker, Joseph Henry, 3,683,211.
McFarlane, Le Roy F., to Coilform Company Inc. Drain clip for surgical drain. 3,682,180, Cl. 128-350.00r.
McGraw-Edison Company: *See—*
Holmes, William A., 3,682,481.
McHale, John J.; deceased (by McHale, Mary E.; administratrix), to Du Pont de Nemours, E. I., and Company. Butane diol-terephthalic-isophthalic-sebacic acid. 3,682,863, Cl. 260-75.00r.
McHale, Mary E.: *See—*
McHale, John J., 3,682,863.
McIntosh, Ian Arthur; Bowers, Norman John; Bowers, Brian Alfred; and Miles, Bruce Robert, to Air Advantage (Australia) Pty., Limited. Mounting frame for rock breakers and rock implements. 3,682,253, Cl. 173-23.000.
McLaren, James C.: *See—*
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McLellan, Donald J.; and Stotts, Roger B., to Universal Oil Products Company. Air gauge system for tubing walls. 3,681,974, Cl. 73-37.500.
McMillan, Jerry N. Chest for flatwork ironer. 3,681,865, Cl. 38-56.000.
McNeill, Robert C.: *See—*
Bauer, Robert F.; McNeill, Robert C.; and Ledbetter, Jerry T., 3,682,243.
McNulty, Carrell S. Manhole flowmeter. 3,681,988, Cl. 73-194.00r.
McPherson, Patrick F., to Blu-Ray, Incorporated. Printer apparatus rotating cylinder lamp connector. 3,683,310, Cl. 339-8.001.
Medical Engineering Corporation: *See—*
Lynch, Henry W., 3,681,786.
Medovar, Boris Izrailevich: *See—*
Paton, Boris Evgenievich; Medovar, Boris Izrailevich; Bondarenko, Oleg Petrovich; Latash, Jury Vadimovich; Baglai, Vitaly Mikhailovich; and Shirshov, Vladimir Grigorievich, 3,682,622.
Meek, James M., to United States of America, Army. Compact scanning radar antenna. 3,683,387, Cl. 343-761.000.
Mefferd, Wayne S.: *See—*
Hobart, James Lee; and Mefferd, Wayne S., 3,683,297.
Mefodiev, Vladimir Nikolaevich: *See—*
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Stockmann, Hans H.; and Meier, Eric A., 3,683,033.
Meierhofer, Hugo Albert, to Zellweger Ltd. Machine for the automatic drawing in of the threads of a warp. 3,681,825, Cl. 28-46.000.
Meiji Seika Kaisha, Ltd.: *See—*
Nishio, Motohiro; Ito, Teiichiro; Koeda, Takemi; and Shibata, Uichi, 3,682,899.
Meilink Steel Safe Company: *See—*
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Melone, Robert R., to Illinois Tool Works Inc. Remote sensing indicator. 3,683,347, Cl. 340-244.00r.
Mentha, John W.: *See—*
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Mercier, Andre. Centrifugal separator. 3,682,373, Cl. 233-1.00c.
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Shen, Tsung-Ying; Witzel, Bruce E.; and Walford, Gordon L., 3,682,968.
Wolf, Frank J.; Miller, William J.; and Chaiet, Louis, 3,683,073.
Meredith, Curtis L.; Barrett, Robert E.; and Bishop, William A., to Copolymer Rubber & Chemical Corporation. Process for preparing improved plastic compositions and the resulting products. 3,683,050, Cl. 260-876.00r.
Meri, Kalju, to Electrospace Corporation. Telephone ringing signal detector and line answering means. 3,683,122, Cl. 179-84.00r.
Meriggi, Vincenzo, to Coffee Corporation, S.A. Coffee bar machine. 3,682,090, Cl. 99-289.000.
Merz, Werner. Apparatus for developing photographic films. 3,682,080, Cl. 95-93.000.
Messerschmitt-Bolkow-Blohm Gesellschaft mit Beschrankter Haftung: *See—*
Sohlemann, Just; and Muller, Gerhard, 3,681,961.
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Messner, Jacob. Cover materials for body-supporting articles. 3,681,797, Cl. 5-347.000.
Metaframe Corporation: *See—*
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Metal Processing Co., Inc.: *See—*
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Meyer, Gerhard: *See—*
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Meyer, Kurt; and Thumm, Wilhelm, to Metallgesellschaft Aktiengesellschaft. Process for the manufacture of pellets of high compressive strength and abrasion resistance. 3,682,620, Cl. 75-3.000.

Meyer, Richard D.; and Walczak, Zbigniew K., to Phillips Petroleum Company. Apparatus for removing liquid from fibers. 3,681,852, Cl. 34-122.000.

Mezey, Frank G. J., to Victor Insetta. Method of making rotars for variable capacitors. 3,681,828, Cl. 29-25.420.

Mezger, Hans: *See—*
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Michigan Chemical Corporation: *See—*
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Middleton, William J., to Du Pont de Nemours, E. I., and Company. α,β-Bis(trifluoromethyl) stilbenes. 3,683,009, Cl. 260-479.00r.

Midland-Ross Corporation: *See—*
Degelleke, Gerrit; and Bush, Robert E., 3,682,031.

Midland-Yorkshire Tar Distillers Limited: *See—*
Webster, William E., 3,682,939.

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Mikhailov, Pavel Mikhailovich: *See—*
Solntsev Viktor Gavrilovich; Manuilov, Jury Grigorievich; Karataev, Gury Sergeevich; Podborsky, Leonid Ermolaevich; Mikhailov, Pavel Mikhailovich; Tsapsky, Alexandr Zakharovich; Milov, Vladimir Gennadievich; Saikonen, Evert Alexandrovich; Gubanov, Vadim Gergievich; Olkhovsky, Jury Fedorovich; Naret, Grigory Borisovich; Garbuzov, Zalman Eremeevich; Balaklo, Viktor Nikolaevich; Griffin, Evgeny Pavlovich; Smirnov, Alexandr Fedorovich; Mutushev, Gavrill Akhmetovich; Smirnov, Leonid Nikolaevich; Livshits, Lev Grgorievich; and Lamin, Vladimir Ivanovich, 3,681,863.

Miki, Masataka: *See—*
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Mikofalvy, Bela K.; and Knechtges, Donald P., to Goodrich, B. F., Company, The. Low temperature curing vinylidene halide-unsaturated monocarboxylic acid-N-alkylol amide polymers. 3,682,871, Cl. 260-80.710.

Milek, Robert C. Troughing idler assembly. 3,682,294, Cl. 198-192.00a.

Miles, Bruce Robert: *See—*
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Miles Laboratories, Inc.: *See—*
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Miller, Edmund S.; and Miller, Nancy W. Three dimensional puzzle. 3,682,479, Cl. 273-157.00r.

Miller, Glenn O., to Shield Mfg., Inc. Protective mouthpiece. 3,682,164, Cl. 128-136.000.

Miller, Henry A., to Air Reduction Company, Incorporated. Sealing valve for pressure regulator. 3,682,437, Cl. 251-61.200.

Miller, Hobson, to United States Banknote Corporation. Screen Filter. 3,682,558, Cl. 401-200.000.

Miller, Martin E., to Gold Line Connector, Inc. Swimming pool alarm. 3,683,353, Cl. 340-261.000.

Miller, Nancy W.: *See—*
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Miller, William J.: *See—*
Wolf, Frank J.; Miller, William J.; and Chaiet, Louis, 3,683,073.

Miller, William J.; Wolf, Frank J.; and Chaiet, Louis. Methobottromycin and process for treating poultry infections. 3,683,072, Cl. 424-117.000.

Mills, Edwin R.; and Elmore, Ernest L., to Fieldcrest Mills, Inc. Electrically heated bedcover with thermostatless overheat protection circuit and separate comfort. 3,683,151, Cl. 219-212.000.

Milov, Vladimir Gennadievich: *See—*
Solntsev Viktor Gavrilovich; Manuilov, Jury Grigorievich; Karataev, Gury Sergeevich; Podborsky, Leonid Ermolaevich; Mikhailov, Pavel Mikhailovich; Tsapsky, Alexandr Zakharovich; Milov, Vladimir Gennadievich; Saikonen, Evert Alexandrovich; Gubanov, Vadim Gergievich; Olkhovsky, Jury Fedorovich; Naret, Grigory Borisovich; Garbuzov, Zalman Eremeevich; Balaklo, Viktor Nikolaevich; Griffin, Evgeny Pavlovich; Smirnov, Alexandr Fedorovich; Mutushev, Gavrill Akhmetovich; Smirnov, Leonid Nikolaevich; Livshits, Lev Grgorievich; and Lamin, Vladimir Ivanovich, 3,681,863.

Minami, Shigeo, to Hitachi, Ltd. Analog calculation apparatus for performing convolution. 3,683,164, Cl. 235-181.000.

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Minsky Opytny Zavod Spetsiolnogo Konstrukt-Osskogo: *See—*
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Mirviss, Stanley B.; and Schlechter, Melvin M., to Stauffer Chemical Company. Phosphino, phosphonodithioic acid secondary or tertiary heterocyclic amine salts. 3,682,905, Cl. 260-247.100.

Misawa, Masanaru: *See—*
Nara, Takashi; Misawa, Masanaru; and Okachi, Ryo, 3,682,777.

Misson, George W., to PPG Industries, Inc. Gas hearth with particular gas-supply channels. 3,682,610, Cl. 65-182.00a.

Mitchell, Norris W.; Skraba, Frank W.; and Houston, William L., Jr., to Phillips Petroleum Company. Solvent skimming device for caustic washer. 3,681,897, Cl. 55-227.000.

Mitchell, Robert D., to Holley Carburetor Company. Throttle lock-out arrangement. 3,682,149, Cl. 123-119.00f.

Mitchell, William A.; and Klose, Robert, to General Foods Corporation. Green coffee decaffeination using edible ester solutions. 3,682,648, Cl. 99-70.000.

Mitchell, William D.; and Soboczenski, Edward J., to Du Pont de Nemours, E. I., and Company. Phenylureas as plant growth modifiers. 3,682,618, Cl. 71-120.000.

Mite Corporation: *See—*
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Mitkevich, Eduard Mikhailovich; Korobanov, Vladimir Nikolaevich; Babkina, Vera Jurievna; Shakhova, Alexandra Filippovna; Mefodiev, Vladimir Nikolaevich; and Gaidash, Nikolai Ivanovich. Method of producing calcium chloride and sodium chloride. 3,682,602, Cl 23-303.000.

Mitsubishi Denki Kabushiki Kaisha: *See—*
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Mitsubishi Jukogyo Kabushiki Kaisha: *See—*
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Mitsubishi Jukogyo Kabushiki Kaisha Isbukawajima-Harima Jukogyo Kabushiki Kaisha: *See—*
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Mitsui Toatsu Chemicals, Incorporated: *See—*
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Miyama, Hajime; Harumiya, Noriho; Nakao, Mituru; Kimura, Mutsumi; Ito, Isao; and Ohgushi, Katunori, to Toray Industries, Inc. Method for producing acrylonitrile copolymers. 3,682,800, Cl. 204-159.230.

Miyata, Itaru: *See—*
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Mo och Domsjo Aktiebolag Ormskoldsvid: *See—*
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Mobil Oil Corporation: *See—*
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Clayton, William J.; and Keyser, Charles D., 3,682,028.
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Mohacsi, Ernest: *See—*
Den Hollander, Charles William; Leimgruber, Willy; and Mohacsi, Ernest, 3,682,925.

Mohan, Arthur Gaudens; and Madison, Richard Keith. Process for indoles (ring closure of nitro compounds). 3,682,901, Cl. 260-240.00d.

Mohawk Industrial Laboratories, Inc.: *See—*
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Moisture Control and Measurement Limited: *See—*
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Moldovan, Daniel: *See—*
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Mollere, George A. Portable disposable charcoal grill. 3,682,154, Cl. 126-9.00a.

Mommer, Richard Paul, to Loveland Industries, Inc. Grain conditioner-modifier chemical combination. 3,682,653, Cl. 99-103.000.

Monforts, A.: *See—*
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Monon Trailer Inc.: *See—*
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Monrick Holdings Limited: *See—*
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Monsanto Company: *See—*
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Montacie, Marcel, to Union Industrielle Blanzy-Ouest. Self-loading conveyor. 3,682,288, Cl. 198-7.000.
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Moore, Lloyd William. Battery cutoff switch. 3,683,143, Cl. 200-162.000.
Moore, Raymond H., to Bunker Hill Company, The. Sorbate extraction of metallic values from aqueous leach solutions. 3,682,589, Cl. 23-125.000.
Mooreman, Michel. Enzymatic products which optimise the viscosity of mucuses and their applications. 3,683,069, Cl. 424-94.000.
Moradzadeh, Yaqub; and Bettiga, Albert C., to International Business Machines Corporation. Method of developing electrostatic images. 3,682,678, Cl. 117-17.500.
Moran, Jack; Stevenson, Boyd; and Reynolds, William A., to M-R-S, Inc. Closing plate for electric meter housing. 3,683,102, Cl. 174-50.000.
Morancy, William F., to Lawson Products, Inc. Method of making non-run spandex fabric. 3,682,731, Cl. 156-148.000.
Morgan, George W.: *See—*
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Morken, Robert E.: *See—*
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Morris, Arthur Leslie; Morris, Peter John; and Simpkin, Dennis John, to Esso Research and Engineering Company. Lubricating and fuel oil compositions. 3,682,819, Cl. 252-32.70e.
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Morris, Rupert C.: *See—*
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Morrow, Robert D.; and Sesko, William J., to Technology Systems, Inc. Cash handling apparatus having a multi-cell magazine. 3,682,183, Cl. 133-1.000.
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Shepelyakovsky, Konstantin Zakharovich; Ushakov, Boris Konstantinovich; Devyatkin, Vasily Petrovich; Devyatkov, Vladimir Fedorovich; Shakhov, Vasily Ivanovich; Kachkanov, Nikolai Nikolaevich; Gazarov, Leon Alexandrovich; Pchelkina, Valentina Mikhailovna; Drbunov, Mikhail Alexandrovich; and Vologdin, Vladislav Valentinovich, 3,682,519.
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Schmidt, Bernard H., Jr., 3,683,202.
Treadway, Ronald L., 3,683,204.
Motz, Jerome C.; and Scaffidi, Francis. Method of making bi-metal crusher liner. 3,682,227, Cl. 164-94.000.
Mouton Rene P.: *See—*
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Muehllehner, Gerd, to Nuclear-Chicago Corporation. Radiation imaging apparatus. 3,683,185, Cl. 250-71.50r.
Mueller, Jacob: *See—*
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Mueller, Peter G.: *See—*
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Mueller, Peter G., to Picker Corporation, mesne. Pulse height analyzer. 3,683,284, Cl. 328-117.000.
Mueller, Rudolph C.: *See—*
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Muenchinger, Herman G., to Research Engineering & Manufacturing, Inc. Self-thread forming threaded fasteners and method and apparatus for making the same. 3,681,963, Cl. 72-88.000.
Mukai, Noboru: *See—*
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Mulaskey, Bernard F., to Chevron Research Company. Hydroconversion process. 3,682,811, Cl. 208-111.000.
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Muller-Berner, Alfred Hermann, to Daimler-Benz Aktiengesellschaft. Installation for controlling a combustion engine. 3,682,152, Cl. 123-140.0mc.
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Munters, Carl George, to Munters, Carl, & Co. Apparatus for forming an impregnated paper web with corrugations or pleats. 3,682,747, Cl. 156-459.000.
Murakami, Hitoshi: *See—*
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Murata, Norio, to Matsushita Electric Industrial Co., Ltd. Physiological signal transmitter for use inside the body. 3,682,160, Cl. 128-2.00p.
Murphy, Clarence R.: *See—*
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Myers, Clifford E., to Welsh Corporation, The. Method of producing fire retardance in a prefinished panel. 3,682,675, Cl. 117-8.000.
Myers, Herman A. Open end two point contact wrench. 3,682,024, Cl. 81-129.000.
Myles, Walter Edward, to Singer Company, The, mesne. Optical system to reduce image to lens distance by polarization control. 3,682,532, Cl. 350-157.000.
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Nabae, Akira; Arii, Mitsuru; Arakawa, Osamu; and Sugiyama, Sadao, to Tokyo Shibaura Electric Co., Ltd. Vacuum switch contact. 3,683,138, Cl. 200-144.00b.
Nagai, Masakazu: *See—*
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Nagakura, Mitsuo, to Telenite Company Limited and Teiseki Telnite Industry Co., Ltd. Process for preparing mixed feeds that contain nonprotein nitrogen. 3,682,644, Cl. 99-2.00r.
Nagano, Akira; Ninomiya, Nobukata; and Miura, Masatsugu, to Omron Tateisi Electronics Co. Input device. 3,683,370, Cl. 340-365.000.
Nagata, Wataru; Terasawa, Tadao; and Sugasawa, Tsutomu. Certain phenanthrene compounds for treatment of acne. 3,683,091, Cl. 424-331.000.
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Nakamura, Eishin. Roller piston type rotary engine. 3,682,566, Cl. 418-11.000.
Nakamura, Toshio; and Ozeki, Hidekichi, to Akechi Taikarengs Kabushiki Kaisha. Method of manufacturing carbonaceous refractory products. 3,682,686, Cl. 117-46.0cc.
Nakao, Mituru: *See—*
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National Bank and Trust Company of Central Pennsylvania; administrator, d.b.m.c.t.a. of the estate of Beach, Willard C.; deceased, National Bank and Trust Company of Central Pa.; administrator c.t.a. of the estate of Beach, Mary B. 4Y Beach, Willard C. 4Y each, Mary B.: *See—*
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Nettleship, Robert, to Pye Limited. Temperature compensated amplifier employing complementary pairs of transistors. 3,683,112, Cl. 179-1.00a.
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Nevsky Mashinostroitelny zavod imeni V.I.: *See—*
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Newkirk, Marc S., to International Materials. Method and means for generating hydrogen and a motive source incorporating same. 3,682,142, Cl. 123-3.000.
Newman, Donald J.; Williams, Donald J.; and Berg, John R., to Minnesota Mining and Manufacturing Company. Wide latitude heat-sensitive copy-sheet and method of making. 3,682,684, Cl. 117-36.900.
Newstead, Charles, to Girling Limited. Vehicle wheel brakes. 3,682,281, Cl. 188-265.000.
Newsteder, Robert. Siphoning apparatus. 3,682,193, Cl. 137-151.000.
Newton, Charles V. Method and means for pre-applying glue and reactivating it for continuous form collating. 3,682,740, Cl. 156-291.000.
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Null, Cecil A.; and Klinger, Robert H., Sr. Digital/electronic logic and electromechanical control for stringed musical instruments. 3,682,036, Cl. 84-317.000.
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Oberthur, Heinrich, to ITT Industries, Inc. Antiskid brake control system. 3,682,514, Cl. 303-21.00f.
Obuchi, Satoru; Fukuoka, Tokuji; Nagato, Saburyo; Murakami, Kunio; Shigeta, Tamikazu; and Hayashi, Hiroyuki, to Nippon Rayon Kabushiki Kaisha. Process for pre-treating glass fibers for reenforcing rubber articles. 3,682,687, Cl. 117-72.000.
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Oertel, Harald; Eholzer, Ulrich; and Rosendahl, Fredrich-Karl, to Farbenfabriken Bayer Aktiengesellschaft. Semicarbazide with substituted phenyl group and N-heterocyclic ring. 3,682,902, Cl. 260-243.00b.
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Ohnsorge, Horst; and Wagner, Winfried, to Telefunken Patentverwerlungsgesellschaft m.b.H. Method for detecting interference in frequency shift data transmission system. 3,683,278, Cl. 325-42.000.
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Olds, Richard G.; and Bonzack, Eugene P., to Westinghouse Electric Corporation, mesne. Pivotally supported rack construction. 3,683,238, Cl. 317-118.000.
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Ostertag, Karl; and Nilgens, Heinrich. Method for the uniform heat treatment of filiform material. 3,682,238, Cl. 165-1.000.
O'Sullivan, Denis Joseph; and Stamper, David John, to Loctite (Ireland) Limited. Stabilized anaerobic sealant composition. 3,682,875, Cl. 260-89.50r.
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Packin, Milton; and Seid, Bernard, to Radiation Machinery Corporation. Atomic irradiator having means for rotating samples for uniform exposure. 3,683,181, Cl. 250-52.000.
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Palm, Bert E.; and Germano, Victor V., to Diamond Shamrock Corporation. Method of preparing concrete reinforcing elements. 3,682,718, Cl. 148-6.200.

Palme, Karl; and Watts, Raymond L., to Wehr Corporation. Brake actuating mechanism for rapid take up of running clearance and gradual application of brake setting force. 3,682,279, Cl. 188-171.000.

Palmer, Peter J.; and Anderson, Thomas A., to Westinghouse Brake English Electric Semi-Conductors Limited. Method of coating surface with polymer material. 3,682,698, Cl. 117-200.000.

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Panek, Mitchell W. Injector device. 3,682,087, Cl. 99-256.000.

Paniez, Jean-Marie Joseph. Rack for agitating movement and inclination of bottles of champagne. 3,682,088, Cl. 99-277.200.

Pankove, Jacques Issac, to RCA Corporation. Electroluminescent semiconductor device of GaN. 3,683,240, Cl. 317-234.00r.

Papaioannou, Christos George, to American Cyanamid Company. Preparation of 2-(2-amino-1,3,4-thiadiazol-5-yl) -1-substituted-5-nitroimidazoles. 3,682,942, Cl. 260-306.80d.

Papousek, Robert D. Shock absorbers for vehicles. 3,682,462, Cl. 267-34.000.

Park, Robert G., to Oklahoma Manufacturing Company. Heat exchanger. 3,681,936, Cl. 62-333.000.

Park, Woo C., to Dick, A. B., Company. Electrophotographic printing element containing cyanine sensitizers and a multi-component polymeric binder. 3,682,630, Cl. 96-1.600.

Park-A-Bike Corporation: *See—*
Esposito, John, 3,682,523.

Parke, Davis & Company: *See—*
Kaltenbronn, James S.; and Short, Franklin W., 3,682,976.

Parker, Edward H.; Gould, William F.; and Alley, John H., to Western Litho Plate & Supply Co. Apparatus for post-exposure treatment of lithographic plates. 3,682,078, Cl. 95-89.00r.

Parker Manufacturing Company: *See—*
Duprey, Francis S., 3,681,845.
Priest, Edward D., 3,681,844.

Parnell, James A., to Bausch & Lomb Incorporated. Capacitive transducer drive mechanism for the recording pen of a graphical recorder. 3,683,402, Cl. 346-32.000.

Parsons, Ralph M., Company, The: *See—*
Browder, Timothy J., Jr., 3,682,593.

Partiot, Maurice. Infrared burners and high efficiency radiant plates. 3,683,058, Cl. 264-156.000.

Partovi-Najafabadi, Roohollah. Mechanical voting machine. 3,682,375, Cl. 235-50.00a.

Pasco, H. Merrill: *See—*
Karrh, John H.; and Flowers, George H., Jr., 3,682,676.

Passavant-Werke: *See—*
Busse, Oswald; and Klesper, Hugo, 3,682,322.

Paterson Candy International Limited: *See—*
Stevenson, David Gordon, 3,682,312.

Patil, Arvind S.; Veltman, Preston L.; Loder, Edwin R.; Sabatelli, Philip M.; and Sarge, Carmen R., to Grace, W. R., & Co. and Chemed Corporation. System for producing and discharging oxidizers for washing operations. 3,682,190, Cl. 137-93.000.

Paton, Boris Evgenievich; Medovar, Boris Izrailevich; Bondarenko, Oleg Petrovich; Latash, Jury Vadimovich; Baglai, Vitaly Mikhailovich; and Shirshov, Vladimir Grigorievich. Method of electroslag remelting of consumable electrodes. 3,682,622, Cl. 75-10.000.

Patterson, James A., to Sondell Research & Development Co. Spherical electronic components. 3,683,307, Cl. 338-99.000.

Pattillo, Roy E.: *See—*
Gunter, Josef K.; Gunter, C. Walton; Pattillo, Roy E.; and Howe, James W., Jr., 3,681,815.

Paul, Maynard C.; Sauter, Gerald F.; and Oberg, Paul E., to Sperry Rand Corporation. High density magnetic recording scheme. 3,683,407, Cl. 346-74.00m.

Paull, Kenneth D.: *See—*
Pettit, George R.; Fessler, Dyral C.; and Paull, Kenneth D., 3,682,895.

Paulsen, Duane Owen: *See—*
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Pavlik, Kamil: *See—*
Jindra, Karel; Pavlik, Kamil; Kas, Josef; Kocian, Zdenfk; Hanjs, Vaciav; and Tyls, Jaruslav, 3,681,907.

Pavlovic, Jack Dale: *See—*
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Payne, Donald C.: *See—*
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Pchelkina, Valentina Mikhailovna: *See—*
Shepelyakovsky, Konstantin Zakharovich; Ushakov, Boris Konstantinovich; Devyatkin, Vasily Petrovich; Devyatkov, Vladimir Fedorovich; Shakhov, Vasily Ivanovich; Kachkanov, Nikolai Nikolaevich; Gazarov, Leon Alexandrovich; Pchelkina, Valentina Mikhailovna; Drbunov, Mikhail Alexandrovich; and Vologdin, Vladislav Valentinovich, 3,682,519.

Pearl, David R., to Gerber Garment Technology. Cutter blade and guide construction for a sheet material cutter with a reciprocating cantilevered blade. 3,682,034, Cl. 83-635.000.

Pechiney Ugine Kuhlmann: *See—*
Kazeef, Michel G., 3,682,235.

Peck, Ronald G., to Square D Company Canada Limited. Electric circuit breaker with arc current shunting blade stacked on contact blade. 3,683,140, Cl. 200-146.00r.

Peerless Industries, Incorporated: *See—*
Bloom, Stanley L., 3,682,503.

Peeters, Hogo Karel: *See—*
Laridon, Urbain Leopold; Delzenne, Gerard Albert; Poot, Albert Lucien; and Peeters, Hogo Karel, 3,682,642.

Penick & Ford Limited, mesne: *See—*
Rix, Charles E.; and Mysels, Karol J., 3,682,685.

Penick, Robert A.: *See—*
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Penkowski, Lee J.: *See—*
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Penn, Everett: *See—*
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Pennsylvania Engineering Corporation: *See—*
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Pentronix, Inc.: *See—*
Smith, Joseph E., 3,682,577.

Perkins, Donald D.: *See—*
Bowen, John W.; and Perkins, Donald D., 3,683,144.

Perl, Richard L. Gas oven. 3,682,156, Cl. 126-21.00a.

Perl, Richard L., to Tappan Company, The. Concealed surface cooking assembly. 3,682,157, Cl. 126-37.00b.

Perlman Stuart Stanley; and McCusker, Joseph Henry, to RCA Corporation. Ferro-electric transformers with means to supress or limit resonant vibrations. 3,683,211, Cl. 310-8.200.

Perminov, Evgeny Mikhailovich, to Minsky Opytny Zavod Spetsiolnogo Konstrukt-Osskogo. Drawing machine. 3,682,108, Cl. 108-6.000.

Permsky ordena Trudovogo Krasnogo Znameni Gosudarstvenny Universitet imeni A.M.: *See—*
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Perras, Colette, to Moxness Products, Inc. Implantable breast prosthesis filled with gels of different densities. 3,681,787, Cl. 3-36.000.

Perrella, Guido. Precision drill press. 3,682,562, Cl. 408-234.000.

Perrier, Augustin. Warp guide bar mechanism. 3,681,943, Cl. 66-86.000.

Perring, Dudley: *See—*
Phillips, Graham; and Perring, Dudley, 3,683,235.

Person, Paul L., to Catholic Press Society, Inc. Apparatus for stripping and cleaning backing plates or press saddles. 3,682,744, Cl. 156-389.000.

Peschl, Ervin; Malasek, Frantisek; and Kolar, Vladimir, 1/2% to Schlafhorst & Co. and 1/2% to Vyzkumny Ustav Pletarsky. Warp knitting machine. 3,681,944, Cl. 66-86.000.

Peter, Heinrich: *See—*
Bickel, Hans; Bosshardt, Rolf; Fechtig, Bruno; Hueller, Johannes; and Peter, Heinrich, 3,682,903.

Petersen, Earl L. Adjustable easel. 3,682,433, Cl. 248-459.000.

Peterson, Richard H.; Finch, Robert A.; and Oltman, Bruce A. Electronic player system for electrically operated musical instruments. 3,683,096, Cl. 84-115.000.

Peterson, Thomas D.; and Crosser, Ralph W., Jr., to Kennecott Copper Corporation. Apparatus for uncoupling railroad cars. 3,682,325, Cl. 213-211.000.

Petix, Edward. Replaceable electrochemical cell module. 3,682,705, Cl. 136-86.00r.

Petro-Tex Chemical Corporation: *See—*
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Pettit, George R.; Fessler, Dyral C.; and Paull, Kenneth D. Synthesis of 3-hydroxy-5-bufa-20, 22- dienolide. 3,682,895, Cl. 260-239.570.

Petukhov, Evgeny Dmitrievich: *See—*
Korikovsky, Petr Konstantinovich; Kulichkov, Jury Semenovich; and Petukhov, Evgeny Dmitrievich, 3,681,909.

Pfeiffer, John D., to Beloit Corporation. Slitter with sharpness retention capability. 3,682,032, Cl. 83-496.000.

Phelps Dodge Copper Products Corporation: *See—*
Yearley, Douglas C., 3,682,228.

Phenyl propylamino alkanols and their esters: *See—*
Beregi, Laszlo; Hugon, Pierre; Le Douarec, Jean-Claude; and Duhault, Jacques, 3,683,008.

Philbrick, Daniel W., to Robertshaw Controls Company. Annunciator circuit or field point monitoring system. 3,682,129, Cl. 116-65.000.

Philco-Ford Corporation: *See—*
Berenbaum, Arthur; and West, William A., 3,683,145.

Phillips Fibers Corporation: *See—*
McCord, Donald M., 3,681,969.

Phillips, Graham; and Perring, Dudley, to Electric & Musical Industries Limited. Electron discharge devices. 3,683,235, Cl. 315-534.000.

Phillips, Mabry S.: *See—*
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Phillips, Mabry S., Jr.: *See—*
von Gal, George E., Jr.; Phillips, Mabry S., Jr.; and Hutchinson, Lawrence A., 3,682,290.

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Meyer, Richard D.; and Walczak, Zbigniew K., 3,681,852.

Mitchell, Norris W.; Skraba, Frank W.; and Houston, William L., Jr., 3,681,897.
Ritter, Ronald E.; and Hutson, Thomas, Jr., 3,682,779.
Streets, William L.; and Glenn, Charles O., 3,682,812.
Phillips, Russell B. Blade structure for mowers and edgers. 3,681,903, Cl. 56-295.000.
Photocircuits, division of Kollmorgen Corporation: *See—*
Zeblisky, Rudolph J., 3,682,671.
Photogramics, Inc.: *See—*
Dicus, Allen B., Jr.; Kharasch, Arnold S.; and Lavin, Sheldon, 3,682,063.
Photovolt Corporation: *See—*
Dahms, Harald; Levy, Gabor B.; and Seltzer, David M., 3,682,783.
Picker Corporation: *See—*
Martone, Ronald J.; Mueller, Peter G.; and Flis, Richard J., 3,683,180.
Picker Corporation, mesne: *See—*
Brunett, Carl J.; and Payne, Donald C., 3,683,184.
Mueller, Peter G., 3,683,284.
Piech, Ferdinand K.; and Mezger, Hans, to Porsche, Dr.-Ing. H.c.F., K.G., Firma. Connecting rod, especially forked connecting rod for internal combustion engines. 3,682,018, Cl. 74-579.00e.
Pieper, Charles Joseph; and Langmead, Edmund Clarence, Jr., to Chicago Bridge & Iron Company. Converter vessel with heat shield about its tap hole. 3,682,460, Cl. 266-35.000.
Pieters, Leon Andre, to Image Analysing Computers Limited. Television camera tube residual charge removal. 3,683,108, Cl. 178-7.200.
Piorek, John: *See—*
Presnick, Michael C.; Penn, Everett; and Piorek, John, 3,683,357.
Pirelli, Maria Marinelli. Composite screen for luminous projections with three dimensional effect. 3,682,527, Cl. 350-123.000.
Pisaroni, Giuseppe. Machine for closing the groove and smoothing the sole in a shoe. 3,681,803, Cl. 12-29.000.
Pisecker, Johann, to Aktiengesellschaft Brown, Boveri & Cie. Subsychronous static converter cascade. 3,683,251, Cl. 318-237.000.
Pissiotas, Georg: *See—*
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Pitney-Bowes, Inc.: *See—*
Rouan, Francis J.; and Hanson, Walter J., 3,682,378.
Piwonka, Thomas S.; and Hanna, James V., to TRW Inc. Melting of refractory and reactive metals. 3,682,458, Cl. 266-33.00r.
Place, Harold: *See—*
Cheshire, Alan Gillingham; and Place, Harold, 3,682,390.
Plasser, Franz; and Benda, Ekkehardt, to Franz Plasser Bahnbaumaschinen-Industriegesellschaft m.b.H. Mobile track surfacing machine. 3,682,101, Cl. 104-12.000.
Plepys, Raymond A.: *See—*
Hickner, Richard A.; Bredeweg, Corwin J.; and Plepys, Raymond A., 3,682,965.
Plessey Company Limited, The: *See—*
Davies, Guy E., 3,682,192.
Plummer, Walter A. Snap-on orthopedic splint. 3,682,163, Cl. 128-87.00r.
Pocklington, Arthur Ronald; and Mahy, Geoffrey Richard, to British Railways Board. Dampened railway truck. 3,682,102, Cl. 105-157.
Podborsky, Leonid Ermolaevich: *See—*
Solntsev Viktor Gavrilovich; Manuilov, Jury Grigorievich; Karataev, Gury Sergeevich; Podborsky, Leonid Ermolaevich; Mikhailov, Pavel Mikhailovich; Tsapsky, Alexandr Zakharovich; Milov, Vladimir Gennadievich; Saikonen, Evert Alexandrovich; Gubanov, Vadim Gergievich; Olkhovsky, Jury Fedorovich; Naret, Grigory Borisovich; Garbuzov, Zalman Eremeevich; Balaklo, Viktor Nikolaevich; Griffin, Evgeny Pavlovich; Smirnov, Alexandr Fedorovich; Mutushev, Gavrill Akhmetovich; Smirnov, Leonid Nikolaevich; Livshits, Lev Grgorievich; and Lamin, Vladimir Ivanovich, 3,681,863.
Podesva, Ctirado; and Vagi, Kitty. Reaction product of 7-chloro-1-methyl-5-phenyl -1,4-3H-benzodiazepine 2(1H)-one with chloral hydrate and process. 3,682,888, Cl. 260-239.300.
Pohlman, Reimar; Groove, Klaus; and Fichtl, Whalter. Manufacture of alloys. 3,682,459, Cl. 266-34.00r.
Poittevin, Andre: *See—*
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Polaroid Corporation: *See—*
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Polhemus Navigation Sciences, Inc.: *See—*
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Polhemus, William L., to Polhemus Navigation Sciences, Inc. Heading error computer. 3,683,378, Cl. 343-7.0ed.
Policht, Stanislaw A.: *See—*
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Poly-Version, Inc.: *See—*
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Pompeo, Louis, to Duchess Mfg. Corporation. Watch band and a method for manufacturing the same. 3,682,603, Cl. 29-160.600.
Pons, Henry W. Hydrogenation of nitrobenzenes. 3,683,025, Cl. 260-575.000.
Pool, James Leland, to Lisle Corporation. Reversible pliers. 3,681,840, Cl. 29-229.000.
Poot, Albert Lucien: *See—*
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Post, Richard F., 12 1/2% to Williams, Darrell E. and 12 1/2% to Fowler, T. Kenneth. Inertial energy storage apparatus and system for utilizing the same. 3,683,216, Cl. 310-67.000.
Pouli, Dirk; and Larson, Theodore L., to Allis-Chalmers Manufacturing Company. Process for improving nickel base, nonnoble metal fuel cell catalysts. 3,682,709, Cl. 148-20.300.
Powell, Arthur C., to California Portland Cement Company. Rotary kiln nose ring. 3,682,453, Cl. 263-33.00r.
Power, Carlton: *See—*
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PPG Industries, Inc.: *See—*
Johnson, Randall Scott; and Imler, Vaughn Roger, 3,682,613.
Misson, George W., 3,682,610.
Presley, C. Travis: *See—*
Argabright, Perry A.; and Presley, C. Travis, 3,682,245.
Presnick, Michael C.; Penn, Everett; and Piorek, John, to Olympian Scoreboard Division, Metatronics Manufacturing Corporation. Battery operated scoreboard. 3,683,357, Cl. 340-323.000.
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Prezewowsky, Klaus; and Wiechert, Rudolf. Preparation of Δ^{16}-17 ethinyl steroids 17 ethinyl. 3,682,983, Cl. 260-397.300.
Priessnetz, Edmund F., to Electronic Transmission Systems, Inc. Stylus and mounting for electric discharge facsimile recorder. 3,683,412, Cl. 346-139.00a.
Priest, Edward D., to Parker Manufacturing Company. Shear stop. 3,681,844, Cl. 30-266.000.
Pringle, Frank E., Jr.; West, George Allan; Vogel, Walter H.; and Drake, Frederick R., to Hayssen Manufacturing Company. Method of and apparatus for forming packages with tear tabs. 3,681,890, Cl. 53-14.000.
Procter & Gamble Company, The: *See—*
Francis, Marion D., 3,683,080.
Produits Chemiques Pechiney Saint-Gobain: *See—*
Chatelain, Jean, 3,683,051.
Profitt, Leo H. Combination diffusion and vignetting tool. 3,682,075, Cl. 95-65.000.
Pronovost, Joseph J. O. Radar antenna mount. 3,683,376, Cl. 343-5.0pd.
Prumm, Georg. Method for electronically checking coins. 3,682,286, Cl. 194-100.00a.
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Kedzior, Andrzej; Horoszko, Jan; Olszowski, Tadeusz; Romaniec, Edward; and Zaremba, Stanislaw, 3,682,448.
Puente, Jose R. Processing rack for photographic glass plates. 3,682,083, Cl. 95-100.000.
Pugin, Andre; Burdeska, Kurt; and Model, Ernst. Salicyloylaminoanthraquinone pigments. 3,682,966, Cl. 260-326.00d.
Pullman Incorporated: *See—*
Marulic, Walter J., 3,682,105.
Puster, Louis M., to Robertshaw Controls Company. Method of making a poppet valve construction. 3,681,832, Cl. 29-157.10r.
Pye Limited: *See—*
Nettleship, Robert, 3,683,112.
Pyle, Kenneth E., to Reef-Baker Corporation. Condensate valve. 3,682,194, Cl. 137-204.000.
Qatron Corporation: *See—*
White, Rowland K., 3,682,483.
Quaedvlieg, Mathieu: *See—*
Boehmke, Gunther; Hees, Walter; and Quaedvlieg, Mathieu, 3,682,584.
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Quick, Graeme R.; and Buchele, Wesley F., to Iowa State University Research Foundation. Cutting knife assembly for a combine. 3,681,901, Cl. 56-13.600.
Quoos, Kurt: *See—*
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Radimirsch, Karl; and Schwarz, Dietrich, to Dornier System G.m.b.H. Progressively-acting shock absorber element. 3,682,463, Cl. 267-63.000.

Radlmann, Eduard; Kohler, Armin; Konig, Klaus; and Nischk, Gunther, to Farbenfabriken Bayer Aktiengesellschaft. Polyurethane elastomers and a process for the production thereof. 3,682,861, Cl. 260-47.0cb.

Radscheit, Kurt; Kelkheim, Taunus; Fritsch, Werner; Neuenhain, Taunus; Haede, Werner; Stache, Ulrich; Hofheim, Taunus; and Lindner, Ernst, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Method of making carbenolide-3-oxy-esters o an hydroxy acid. 3,682,891, Cl. 260-239.570.

Radscheit, Kurt; Stache, Ulrich; Fritsch, Werner; and Waede, Werner. Process for the manufacture of Δ^{14}-20-keto-21-dialkoxy steroids. 3,682,987, Cl. 260-397.470.

Ramsey, James E., Jr., to Westinghouse Electric Corporation. Multi-element induction device having common armature and magnetic light-load adjusters. 3,683,276, Cl. 324-137.000.

Randolph, Hollis L.; and Graham, Marvin M., to Robertshaw Controls Company. Latching assembly for a control device to prevent operation thereof prior to electromagnet safety release. 3,682,188, Cl. 137-66.000.

Rank Organisation Limited: *See—*
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Rank Organisation Limited, The: *See—*
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Rao, Durvasula V.; Sayigh, Adnan A. R.; and Ulrich, Henri, to Upjohn Company, The. Bis (3-pyrazolidone) compounds. 3,682,954, Cl. 260-310.00a.

Rasmussen, Paul, to Grumman Aerospace Corporation. High pressure forming press. 3,681,958, Cl. 72-57.000.

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Ratowsky, Simon, to Monrick Holdings Limited. Photographic easel. 3,682,547, Cl. 355-74.000.

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Rauter, Gunther; and Wiessner, Edgar, to Siemens Aktiengesellschaft. Frame clamp for electrically connecting electrical leads. 3,683,321, Cl. 339-217.00r.

Ravenna, Franco: *See—*
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Ray, Harold: *See—*
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Reck, Richard A.; and Abramitis, Walter W., to Armour Industrial Chemical Company, mesne. Plant hormone carboxylic acid salts of aliphatic polyamines. 3,683,010, Cl. 260-501.160.

Redden, Robert J., to ILC Industries, Inc. Automatic safety curtain apparatus for air enclosing structures. 3,682,225, Cl. 160-98.000.

Redifon Limited: *See—*
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Reed, David H.: *See—*
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Regan, Bernard M.; and Longstreet, John C., to Baxter Laboratories, Inc. Method of anesthesia. 3,683,092, Cl. 424-342.000.

Regus A.G.: *See—*
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Reich, Karl M., Maschinenfabrik: *See—*
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Reich, Kurt: *See—*
Gebhardt, Fritz; Kaltenmark, Otto; Reich, Kurt; and Keusch, Siegfried, 3,682,751.

Reid, Norman C., to Pako Corporation. Dryer for sheet material. 3,681,853, Cl. 34-151.000.

Reif, Werner; Nuerrenbach, Axel; and Freyschlag, Herwig, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. Preparation of granular vitamin A esters. 3,682,989, Cl. 260-410.000.

Reifers, Richard F.; and Bixler, Kenneth D., to Diamond International Corporation. High strength open bottom meat container. 3,682,365, Cl. 229-2.500.

Reifschneider, Walter, to Dow Chemical Company, The. Thiazolium-urea compound complexes. 3,682,879, Cl. 260-96.50r.

Reimers, Eberhart. Electrical gear shifting in wheel drives. 3,683,247, Cl. 318-45.000.

Rein, Burton M., to Mobil Oil Corporation. Bis(carboxyphenyl) esters of benzenedisulfonyl halides. 3,682,999, Cl. 260-456.00p.

Reiner, Ernst, Kommonditgesellschaft feirmechanik und Apparatebau: *See—*
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Reiners, Franz; and Walk, Georg, to Monforts, A. Method and device for regulating a cam-controlled machine tool. 3,682,025, Cl. 82-1.00c.

Reinhall, Rolf Bertil, to Defibrator Aktiebolag. Dewaterers for fiber pulp suspensions. 3,682,444, Cl. 259-6.000.

Reinke, Friedhelm H.: *See—*
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Reinking, Klaus: *See—*
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Richardson, Lonnie J., to Oak Electro/Netics Corporation. Flexible printed circuit forming contact surface around stator of rotary switch. 3,683,132, Cl. 200-11.00r.

Richardson, William S., to Falk Corporation, The. Pinion construction. 3,682,015, Cl. 74-377.000.

Richey, Clifford C., to Richey's Incorporated. Article-support shoulder bracket. 3,682,358, Cl. 224-5.00r.

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Riekkinen, Asko Sakari, to Oy Nokia AB. Method of starting a combined wire-drawing, annealing and spooling operation. 3,682,723, Cl. 148-156.000.

Ries, Christian; and Stolzenfels, Gunter, to Gerhard Collardin GmbH. Process for applying protective coatings on aluminum, zinc and iron. 3,682,713, Cl. 148-6.14r.

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Righi, Nardino. Drive mechanism for portable record players. 3,682,009, Cl. 74-209.000.

Rigopulos, Peter N., to Amicon Corporation. Tubular ultrafiltration membrane and support. 3,682,318, Cl. 210-321.000.

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Ritter, Ronald E.; and Hutson, Thomas, Jr., to Phillips Petroleum Company. Removal of carbonyl compounds, residual oxygen and other impurities from hydrocarbon dehydrogenation effluent. 3,682,779, Cl. 203-7.000.

Rix, Charles E.; and Mysels, Karol J., to Penick & Ford Limited, mesne. Method of treating glass fibers. 3,682,685, Cl. 117-46.0ca.
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Robinson, Denis; Whelan, Richard Howard; Katz, Philip Harvey; and Montuori, Anthony George, to CPC International, Inc. Convenience package for the preparation of single-crust pies and the like. 3,682,663, Cl. 99-192.000.
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Rodewald, Arnold. Protective device comprising a plurality of serially connected spark gaps. 3,683,234, Cl. 315-238.000.
Rodgers, Elbert A. Portable disposal apparatus for combustible waste and refuse. 3,682,115, Cl. 110-8.00c.
Rodley, Frederick T., to Hoerner Waldorf Corporation. Reinforced bottom bag. 3,682,372, Cl. 229-55.000.
Roffler, Josua, to Sulzer Brothers, Ltd. Vapor generating plant. 3,682,140, Cl. 122-34.000.
Rogers, Ernest W.; and Learney, Lewis P., to Redifon Limited. Transistor amplifiers. 3,683,289, Cl. 330-15.
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Routh, Larry L.; and Contratto, James, to U.S. Industries, Inc. Mounting structure for a power track. 3,683,312, Cl. 339-21.00r.
Rovati, Luigi, to Rotta Research Laboratorium S.p.A. Pharmaceutically active glucosamine salts useful in the treatment of osteoarthritis and rheumatoid arthritis. 3,683,076, Cl. 424-180.000.
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Russo, Robert Ritter, to RCA Corporation. Process for forming an isolated circuit pattern on a conductive substrate. 3,682,785, Cl. 204-15.000.
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Ryabov, Boris Ivanovich: *See—*
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Safranski, Richard W., to Hayssen Manufacturing Company. Packaging machine. 3,681,892, Cl. 53-180.000.
Sage, Bradley B.; and Kase, Heino, to Systron Donner Corporation. Fluid rotor angular rate sensor and three-axis angular rate sensor utilizing the same. 3,682,003, Cl. 73-503.000.
Sahm, Paul A. B. Anti-pollution system for solid fuel-fired steam generating power plants. 3,682,139, Cl. 122-2.000.
Saika, Keiji. Packing tube. 3,682,371, Cl. 229-53.000.
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Sakurada, Ichiro; and Okada, Toshio, to Japan Atomic Energy Research Institute. Method for grafting on polyester fibers with radiation. 3,682,802, Cl. 204-159.150.
Sakurai, Katumi; and Odajima, Kenji, to Kyowa Hakko Kogyo Co., Ltd. and Hitachi, Ltd. Electrolytic solution for zinc plating. 3,682,789, Cl. 204-55.00r.
Salmin, Valery Vasilievich; and Nechaev, Ivan Petrovich. Packing of electrodes in an electric arc furnace. 3,683,095, Cl. 13-17.000.
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Salzwedel, Manfred, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Process for the manufacture of flat heating conductors and flat heating conductors obtained by this process. 3,683,361, Cl. 338-322.000.
Samuels, Abe; Mueller, Rudolph C.; and Marzec, Casimir C., to Speed-O-Print Business Machines Corporation. Manual reversing drive for photocopy machine. 3,682,550, Cl. 355-133.000.
Sanders, Norman Thomas, to Needle Industries Limited. Machine for needling fabrics. 3,681,822, Cl. 28-4.00r.
Sanders, Walter J., to Westinghouse Air Brake Company. Low oil pressure control system for compressors. 3,682,574, Cl. 417-12.000.
Sandler, Yehuda L., to Westinghouse Electric Corporation. Stabilization of silver catalyst in an air diffusion electrode. 3,682,707, Cl. 136-86.00e.
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Sato, Takayoshi, to Kabushikikaisha COPAL. Apparatus for adjusting the electronic shutter of a "through-the-lens" type camera. 3,682,057, Cl. 95-10.0ct.
Sattler, Gernot. Brake signal circuit. 3,683,329, Cl. 340-71.000.
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Schenkel, Dieter, to Licentia Patent-Verwaltungs-GmbH. PCM data transmission system. 3,683,120, Cl. 179-15.00a.
Schering Corporation, mesne: *See*—
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Schieman, Robert G.; and Penkowski, Lee J., to Reliance Electric Company. Adaptive limit current. 3,683,264, Cl. 321-14.000.
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Schneider, Jos., & Co., Optische Werke: *See*—
Hess, Karl-Gunter; Himmelsbach, Paul; and Thomas, Otto, 3,682,072.
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Schneider, Wolfgang, to Goodrich, B. F., Company, The. Process for the isomerization of 5-vinylbicyclo (2.2.1) hept-2-enes. 3,683,039, Cl. 260-666.0ly.
Schoen, William; and Landau, Leo, to Texaco Inc. Demulsifier for water-petroleum emulsions. 3,682,990, Cl. 260-410.500.
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Smit, Gesienus, 3,682,733.
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Schroeder Brothers Corporation: *See*—
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Sclafani, Ben J., to Scovill Manufacturing Company, mesne. Attaching apparatus for chandelier arms. 3,683,171, Cl. 240-78.00f.
SCM Corporation: *See—*
Gilchrist, Allan E., 3,682,814.
Scott, George W., to Textron Inc. Needle loom. 3,682,205, Cl. 139-124.00a.
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Secor, Arthur. Foldable sawhorse. 3,682,272, Cl. 182-155.000.
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Seidenfaden, Heinz, to Vereinigte Flugtechnische Werke-Fokker GmbH. Method and apparatus for fabricating workholders. 3,681,834, Cl. 29-200.00j.
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Self, Aaron C., to Electrotec Corporation. Helical dipole antenna. 3,683,393, Cl. 343-806.000.
Sello, Stephen B.: *See—*
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Sengewald, Karl Heinz. Method and apparatus for making carrying bags and a carrying bag product. 3,682,051, Cl. 93-35.00r.
Sensitron, Inc.: *See—*
Campton, Joseph M.; and Hammerslag, Julius G., 3,681,993.
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Seulen, Gerhard; Reinke, Friedhelm H.; and Stengel, Edgar, to AEG-Elotherm GmbH. Process for the improvement of the development of the texture of inductive surface-hardened steel parts. 3,682,721, Cl. 148-131.000.
Severn, Alpha, 1/2 to Coon, James A. and 1/2 to Theobald, Edwin. Carburetor and dash pot control therefor. 3,682,449, Cl. 261-23.00a.
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Shabad, Zygmund: *See—*
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Shackelford, William E.; and Fullen, Warren J. Polyurea polymer preparation from organic polyisocyanates and complex derivatives of polyamines wherein the primary amine groups thereof are converted to aldimine or ketimine groups & the secondary amine groupor groups thereof have been reacted with organic isocyanates. 3,682,867, Cl. 260-77.5ch.
Shakhov, Vasily Ivanovich: *See—*
Shepelyakovsky, Konstantin Zakharovich; Ushakov, Boris Konstantinovich; Devyatkin, Vasily Petrovich; Devyatkov, Vladimir Fedorovich; Shakhov, Vasily Ivanovich; Kachkanov, Nikolai Nikolaevich; Gazarov, Leon Alexandrovich; Pchelkina, Valentina Mikhailovna; Drbunov, Mikhail Alexandrovich; and Vologdin, Vladislav Valentinovich, 3,682,519.
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Shelby, Richard K., to Monsanto Company. Shielding apparatus for plastic articles. 3,682,135, Cl. 118-503.000.
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Shepard, Francis H., Jr., to Vogue Instrument Corporation. Encoding device. 3,683,110, Cl. 178-17.00c.
Shepelyakovsky, Konstantin Zakharovich; Ushakov, Boris Konstantinovich; Devyatkin, Vasily Petrovich; Devyatkov, Vladimir Fedorovich; Shakhov, Vasily Ivanovich; Kachkanov, Nikolai Nikolaevich; Gazarov, Leon Alexandrovich; Pchelkina, Valentina Mikhailovna; Drbunov, Mikhail Alexandrovich; and Vologdin, Vladislav Valentinovich, to Moskovsky Vecherny Metallurgihesky Institut. Antifriction bearing. 3,682,519, Cl. 8-212.000.
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Kinsella, Thomas P.; and De Vittori, Joseph M., 3,682,806.
Shiba, Keisuke; Hinata, Masanao; Yoshida, Makoto; Imai, Shinichi; Sato, Akira; and Watanabe, Shigaru, to Fuji Photo Film Co., Ltd.

Spectrally sensitized photographic materials suitable for silver dye bleaching method. 3,682,640, Cl. 96-99.000.

Shibata, Fukuo, to Kawasaki Jukogyo Kabushiki Kaisha (Kawasaki Heavy Industries, Ltd.). Electric machine arrangement combining electromagnetic coupling with electric rotating machine. 3,683,249, Cl. 318-205.000.

Shibata, Uichi: *See—*
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Shiborin, Viktor Ivanovich: *See—*
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Shimizu, Sakae; and Kimura, Tsuguo, to Kabushiki Kaisha Ricoh. Electrophotographic recording paper for use in the preparation of a planographic plate. 3,682,629, Cl. 96-1.500.

Shindelman, Jury Iosifovich; and Akulova, Galina Iosifovna. Low-pressure mercury-vapour gas-discharge fluorescent lamp with amalgam. 3,683,227, Cl. 313-109.000.

Shiokawa, Kozo: *See—*
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Shively, Harmon G.; and Landsness, Clifford A., to Goodrich, B. F., Company, The. Apparatus for correcting non-uniformity in a rotating tire. 3,681,877, Cl. 51-106.00r.

Shivvers, Charles C. Material spreader assembly. 3,682,394, Cl. 239-665.000.

Short, Franklin W.: *See—*
Kaltenbronn, James S.; and Short, Franklin W., 3,682,976.

Sianesi, Dario; Fontanelli, Renzo; and Caporiccio, Gerardo, to Montecatini Edison S.p.A. Fluorinated ketones and process for their preparation. 3,683,027, Cl. 260-594.000.

Siclari, Francesco; Horak, Edgardo; and Rosso, Mario, to SNIA Viscosa Societa Nazionale and Kanegafuch Boseki Kabushiki Kaisha. Method for the production of polyesters, more particularly linear polyalkylene terephthalates, and catalyst employed therefor. 3682,864, Cl. 260-75.00r.

Siegrist, Emil: *See—*
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Signetics Corporation: *See—*
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Silver, Norman C.: *See—*
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Silverman, Bernard. Method of imparting a false twist to a thermoplastic ribbon. 3,681,912, Cl. 57-157.0ts.

Simms, John Robert: *See—*
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Simon, Horst. Film metering device for photographic cameras. 3,682,066, Cl. 95-31.0fm.

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Simon, Sydney: *See—*
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Simon, Sydney; Simon, Morris; Hale, John S.; and Markward, Charles J., to Simon, Sydney and said Hale and said Markward assor. to said Simon, Morris. Cleaning apparatus. 3,682,557, Cl. 401-139.000.

Simpkin, Dennis John: *See—*
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Sitnikov, Leonid Semenovich; Utyakov, Lev Lazarevich; and Skorik, Alexandr Grigorievich. Pre-settable self-correcting staircase counters. 3,683,207, Cl. 307-225.000.

SKF Kugellagerfabriken G.m.b.H.: *See—*
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Slater, Thomas C.; and Hamilton, Floyd C., Jr., to Flintkote Company, The. Hydraulic cement and method of producing same. 3,682,669, Cl. 106-100.000.

Smaikin, Viktor Gavrilovich: *See—*
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Small, Norma. Composite hair curler. 3,682,182, Cl. 132-40.000.

Smirnov, Alexandr Fedorovich: *See—*
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Smit, Gesienus, to Scholten-Honig Research N.V. Coated paper. 3,682,733, Cl. 117-156.000.

Smith, A. O., Corporation: *See—*
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Smith, A. Q., Corporation: *See—*
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Smith, Anthony William, to Volu-Sol Chemical and Manufacturing Company, Inc. Throw-away filter assembly. 3,682,321, Cl. 210-477.000.

Smith, Eric P., to Emergency Systems International. Life preserver. 3,681,799, Cl. 9-340.000.

Smith, George; and Wortel, Johannes M., to Shell Oil Company. Synthetic oils from alpha-olefins. 3,682,823, Cl. 252-59.000.

Smith, George; Sawyer, Webster M., Jr.; and Morris, Rupert C., to Shell Oil Company. Alcohol ethoxylates. 3,682,849, Cl. 260-615.00b.

Smith, Herbert B., to Zito Company, Inc., The. Metal bromide system. 3,682,703, Cl. 136-6.000.

Smith, J. Harold, to Johnson & Johnson. Methods and apparatus for depositing powdered materials in patterned areas. 3,682,738, Cl. 156-283.000.

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Smith, Kent F., to General Instrument Corporation. Electronic shift register system. 3,683,203, Cl. 307-221.00c.

Smith Kline & French Laboratories: *See—*
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Smith, Phillip Hagar, to Bell Telephone Laboratories, Incorporated. Clutter fence for suppression of electromagneti energy. 3,683,394, Cl. 343-841.000.

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Smith, William C., to Rader Pneumatics & Engineering Co., Ltd. Pulpwood. 3,682,400, Cl. 241-56.000.

Smyth, William P. Launching device for boat trailers. 3,682,335, Cl. 214-82.000.

SNIA Viscosa Societa Nazionale: *See—*
Siclari, Francesco; Horak, Edgardo; and Rosso, Mario, 3,682,864.

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Sohlemann, Just; and Muller, Gerhard, to Messerschmitt-Bolkow-Blohm Gesellschaft mit Beschrankter Haftung. Extrusion press with a hydro-mechanical rotary drive for the working spindle. 3,681,961, Cl. 72-82.000.
Solari & C./Udine S.p.A.: *See—*
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Solori, Fermo, to Solari & C./Udine S.p.A. Carry-over mechanism with variable ratios. 3,681,913, Cl. 58-4.000.
Sondell Research & Development Co.: *See—*
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Sota, Kaoru; Hayashi, Akifumi; and Amano, Takehiro, to Toisho Pharmaceutical Co., Ltd. Cyclopropanecarboxylic acid esters. 3,683,005, Cl. 260-468.00p.
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Southworth, Glen R., to Colorado Video, Incorporated. Television bandwith compression and expansion system. 3,683,111, Cl. 178-6.000.
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Spiegel, Si, to American Technical Industries, Inc. Tree stand. 3,682,421, Cl. 248-48.000.
Spies, Johann, to Messerschmitt-Bolkow-Blohm Gesellschaft mit beschrankter Haftung. Explosive charge ignition system. 3,682,098, Cl. 102-70.20r.
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Splan, Robert E. File box and file suspension device therefor. 3,682,522, Cl. 312-184.000.
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Spreadsborough, John: *See—*
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Stieg, Bernard O., to Kimberly-Clark Corporation. Rotating turning bar with remote position control. 3,681,904, Cl. 57-3.000.
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Sturgeon, Ronald F. Multiple-axial-pin tumbler lock. 3,681,957, Cl. 70-411.000.
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Tadokoro, Toyotoshi, to Furubayashi Kogyo Kabushiki Kaisha. Method and apparatus for forming valve bodies. 3,681,960, Cl. 72-61.000.
Takagi, Koichi; and Yamada Masuho, to Mitsubishi Jukogyo Kabushiki Kaisha. Device for feeding strips of material. 3,682,470, Cl. 271-27.000.
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Takuya, Suzuki; Masaru, Ikeda; Yoshio, Furuto; Yukihiro, Nagata; and Takeshi, Miura. Process for producing Nb-Ti super conducting material. 3,682,719, Cl. 148-12.700.
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Tanabe, Takashi; Aoki, Hiroshi; Murakami, Hitoshi; and Matsumoto, Fujio, to Teijin Limited. Method of preparing biaxially oriented polyethylene 2,6-naphthalate film. 3,683,060, Cl. 264-289.000.
Tanaka, Harum; and Fukuda, Sumumu. Camera with a retractable lens barrel. 3,682,067, Cl. 95-39.000.
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Thomas, David L. Holder for starter fuel in fireplace grate. 3,682,158, Cl. 126-165.000.
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Tominaga, Hiroshi; and Takamatsu, Masanobu, to Tokyo Sharyo Seizo Kabushiki Kaisha. Material forming apparatus utilizing hydraulic pressure. 3,681,959, Cl. 72-60.000.

Tompkins, David R., to Schlumberger Technology Corporation. Methods and apparatus for inspecting tubular goods using a continuous signal calibrating system. 3,683,187, Cl. 250-83.30d.

Tompkins, David T., to Schlumberger Technology Corporation. Apparatus for inspecting tubular goods using a radiation-focussing device for producing a substantially uniform composite radiation pattern. 3,683,186, Cl. 250-83.30d.

Tomson, Arthur James: *See—*
Kardos, Otto; Arcilesi, Donald Allan; Tomson, Arthur James; and Valayil, Sylvester Paul, 3,682,788.

Toray Industries, Inc.: *See—*
Miyama, Hajime; Harumiya, Noriho; Nakao, Mituru; Kimura, Mutsumi; Ito, Isao; and Ohgushi, Katunori, 3,682,800.
Sano, Keizo; Watanabe, Taigi; Tanaka, Michihiko; Ichikawa, Yoshimitsu; Kato, Koichi; and Matsuura, Hirokichi, 3,682,846.
Yoda, Naoya; Kubota, Takashi; Kurihara, Masaru; Dokoshi, Noriaki; and Yoshihi, Toshiya, 3,682,860.

Torba, Florence E., to Dow Chemical Company, The. Certain 6-(trifluoromethyl)-pyridinols. 3,682,936, Cl. 260-297.00r.

Tornqvist, Jan Tore: *See—*
Johansson, Jarl Harald; and Tornqvist, Jan Tore, 3,682,919.

Toryu, Takao: *See—*
Yamaji, Keizo; and Toryu, Takao, 3,682,539.

Toth, Alex, to Ellis Corporation. Drain structure for a commercial laundry machine. 3,681,952, Cl. 68-208.000.

Touba, Ali R., to General Mills, Inc. Method for cooking meat. 3,682,655, Cl. 99-107.000.

Toyo Kogyo Company Limited: *See—*
Tatsutomi, Yasuo, 3,682,151.

Toyoda Koki Kabushiki Kaisha: *See—*
Kobayashi, Akiyoshi, 3,681,879.

Toyoda, Minoru: *See—*
Kitamura, Takuya; Haruna, Takashi; and Toyoda, Minoru, 3,682,001.

Traedway, Barney R.: *See—*
Brandt, Harry; and Traedway, Barney R., 3,683,056.

Traffic Control Materials & Machines Corporation: *See—*
Mac Phail, Larry S.; Ray, Harold; Smith, Oral P.; and Hall, Lee C., 3,682,054.

Trans-Wheel, Inc.: *See—*
Anderson, Arthur F., 3,682,047.

Travis Mills Corporation: *See—*
Bassist, Rudolph G., 3,681,942.

Treadway, Ronald L., to Motorola, Inc. Frequency divider. 3,683,204, Cl. 307-225.00r.

Trebish, John R.: *See—*
Fedosoff, Joseph P.; and Trebish, John R., 3,682,601.

Tri-Lok, Inc., mesne: *See—*
Stoliker, Joseph F., 3,682,266.

Trifunovic, Alexander L.; and Kase, Charles R., Jr., to Bancroft, Joseph, & Sons Co. Process for mechanically treating materials having a movable flexible retarder. 3,681,819, Cl. 26-18.600.

Triner, Irvin Richard: *See—*
Kehl, Lawrence Joseph; Triner, Irvin Richard; and Janis, Robert Gerald, 3,683,150.

Tritchler, Joseph J., to International Telephone and Telegraph Corporation. Ribbon grid for electron tubes. 3,683,229, Cl. 313-350.000.

Trout, Donald M. Adjustible resilient sash guide structure. 3,681,875, Cl. 49-418.000.

Troxel, Lillian H.; and Johnston, Howard, to Dow Chemical Company, The. Bis(trifluoro methyl)-2-pyridinols. 3,682,938, Cl. 260-297.00r.

Troxel Manufacturing Company: *See—*
Worley, George W., 3,682,509.

Truman, Charles L., to Kimberly-Clark Corporation. Garment production apparatus with automatic sleeve placement. 3,681,785, Cl. 2-243.00r.

TRW Inc.: *See—*
Piwonka, Thomas S.; and Hanna, James V., 3,682,458.

Tsapsky, Alexandr Zakharovich: *See—*
Solntsev Viktor Gavrilovich; Manuilov, Jury Grigorievich; Karataev, Gury Sergeevich; Podborsky, Leonid Ermolaevich; Mikhailov, Pavel Mikhailovich; Tsapsky, Alexandr Zakharovich; Milov, Vladimir Gennadievich; Saikonen, Evert Alexandrovich; Gubanov, Vadim Gergievich; Olkhovsky, Jury Fedorovich; Naret, Grigory Borisovich; Garbuzov, Zalman Eremeevich; Balaklo, Viktor Nikolaevich; Griffin, Evgeny Pavlovich; Smirnov, Alexandr Fedorovich; Mutushev, Gavrill Akhmetovich; Smirnov, Leonid Nikolaevich; Livshits, Lev Grgorievich; and Lamin, Vladimir Ivanovich, 3,681,863.

Tucker, Robert W.: *See—*
Saddler, Ivan R.; and Tucker, Robert W., 3,683,379.

Tuddenham, William Marvin; and Adamson, David L., to Kennecott Copper Corporation. Method and apparatus for electrorefining particulate metallic materials. 3,682,798, Cl. 204-108.000.

Tudury, Arthur F., to Bangor Punta Operations, Inc. Refrigeration and defrost system. 3,681,934, Cl. 62-156.000.

Tullar, Benjamin F.; and Lorenz, Roman R., to Sterling Drug Inc. 3,3,5-Trimethylcyclohexyl-alkyl-carboxylic acid. 3,682,991, Cl. 260-413.000.

Tur, Charles J., to Smith, A. O., Corporation. Small signal amplifier particularly for flow meter monitoring. 3,681,984, Cl. 73-194.00r.

Turbak, Albin F., to Tee-Pak, Inc. Edible vegetable protein casing. 3,682,661, Cl. 99-176.000.

Turner, John Angus/William: *See—*
Geoghegan, Michael Joseph Augustine; Turner, John Angus/William; Freeman, Peter Frank Hilary; and Summers, Lindsay Anderson, 3,683,087.

Turner, Lyman H.; and Kukucka, William P., to Xerox Corporation. Tray apparatus. 3,682,328, Cl. 214-6.00h.

Turner, Martin E.: *See—*
Naarup, Wayne D.; and Turner, Martin E., 3,681,948.

Turpin, Raymond C., Jr. Display board for monitoring a fleet of vehicle. 3,683,366, Cl. 340-325.000.

Tutino, Dominick J. Hydraulic valve lifter tool. 3,681,838, Cl. 29-213.000.

Tyls, Jaruslav: *See—*
Jindra, Karel; Pavlik, Kamil; Kas, Josef; Kocian, Zdenfk; Hanjs, Vaciav; and Tyls, Jaruslav, 3,681,907.

Tyree, Lewis, Jr. Apparatus for making carbon dioxide snow. 3,681,930, Cl. 62-35.000.

Uda, Yuhnosuke: *See—*
Itoh, Yohnosuke; Miki, Masataka; Nishiyama, Makoto; Uda, Yuhnosuke; and Terashima, Masaoki, 3,682,469.

Udovenchik, Vasily Semenovich: *See—*
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Ueno, Kazuo: *See—*
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Ulli, Hans: *See—*
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Ulrich, Henri: *See—*
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UMC Industries, Inc.: *See—*
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Uncovsky, Adolf: *See—*
Buran, Vojtech; Kuba, Jaromir; Uncovsky, Adolf; and Zouhar, Karel, 3,683,178.

Unger, John J.; Augustine, Robert J.; and Khaja, Farees U., to Sunbeam Corporation. Electric coffee percolator. 3,682,089, Cl. 99-281.000.

Union Carbide Corporation: *See—*
Beutler, Hans; and Beatty, Ronald L., 3,682,759.
Ertingshausen, Gehard; and Fabiny, Diane L., 3,682,586.
Johnson, Robert Norman, 3,682,878.

Union Industrielle Blanzy-Ouest: *See—*
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Union Oil Company of California: *See—*
Fischer, Paul W.; and Holm, Leroy W., 3,682,249.

Uniroyal, Inc.: *See—*
Adams, Gerald E.; and Van Buskirk, Edward C., 3,682,768.
Atwell, William J.; and Cranston, Lawrence, 3,682,201.

United Artists Theatre Circuit, Inc.: *See—*
Vetter, Richard H., 3,682,533.

United Fabricating Company, Inc.: *See—*
Bettinger, James H., 3,681,882.

United Kingdom Atomic Energy Authority: *See—*
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United States Banknote Corporation: *See—*
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United States Catheter & Instrument Corporation: *See—*
Imredy, Denis S.; and Schleipman, Fred P., 3,682,159.

United States Gypsum Company: *See—*
Baran, Donald H., 3,681,881.

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Army: *See—*
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Atomic Energy Commission: *See—*
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Navy: *See—*
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United States of Gypsum Company: *See—*
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United States Steel Corporation: *See—*
Hollingsworth, Willis W., 3,682,457.

Universal Oil Products Company: *See—*
Bloch, Herman S., 3,682,838.
Hallman, Newt M., 3,682,780.
McLellan, Donald J.; and Stotts, Roger B., 3,681,974.
Sparks, Allen K., 3,683,030.

Universal Refractories Corporation: *See—*
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Unterstenhofer, Gunter: *See—*
Zumach, Gerhard; Hammann, Ingeborg; Unterstenhofer, Gunter; and Wegler, Richard, 3,683,031.

Upjohn Company, The: *See—*
Doering, William Von E.; Farissey, William J., Jr.; and Frulla, Floro F., 3,683,034.
Magerlein, Barney J., 3,682,884.

Rao, Durvasula V.; Sayigh, Adnan A. R.; and Ulrich, Henri, 3,682,954.
Upmeier, Hartmut, to Windmoller & Holscher. Mixing devices for plastics materials. 3,682,443, Cl. 259-4.000.
Urbanowicz, Nikodem N. Medicament injector for nebulizer. 3,682,167, Cl. 128-194.000.
U.S. Dynamics Inc.: *See—*
Ross, Dan C., 3,682,546.
U.S. Industries, Inc.: *See—*
Routh, Larry L.; and Contratto, James, 3,683,312.
U.S. Philips Corporation: *See—*
Bulthuis, Kornelis; and Shannon, John Martin, 3,683,306.
Roos, Jan; and Boone, Salomon, 3,683,129.
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Ushakov, Boris Konstantinovich: *See—*
Shepelyakovsky, Konstantin Zakharovich; Ushakov, Boris Konstantinovich; Devyatkin, Vasily Petrovich; Devyatkov, Vladimir Fedorovich; Shakhov, Vasily Ivanovich; Kachkanov, Nikolai Nikolaevich; Gazarov, Leon Alexandrovich; Pchelkina, Valentina Mikhailovna; Drbunov, Mikhail Alexandrovich; and Vologdin, Vladislav Valentinovich, 3,682,519.
Usui, Noriyuki: *See—*
Arai, Fumiaki; Ohta, Wasaburo; Kurokawa, Junki; Usui, Noriyuki; Shimizu, Sakae; and Tanaka, Testsuo, 3,682,632.
Utyakov, Lev Lazarevich: *See—*
Sitnikov, Leonid Semenovich; Utyakov, Lev Lazarevich; and Skorik, Alexandr Grigorievich, 3,683,207.
V-M Corporation: *See—*
Guha, Dwipendra Nath, 3,682,485.
Vagi, Kitty: *See—*
Podesva, Ctirado; and Vagi, Kitty, 3,682,888.
Vagin, Alexei Alexeevich; Shalygin, Veniamin Nikolaevich; Shiborin, Viktor Ivanovich; Murakhver, Vladimir Ilich; and Sharov, Nikolai Grigorievich, to Dzerzhinsky filial nauchno-Issledovatelskogo i Konstruktorskogo Instituta Khimicheskogo Mashi-Nastroenia. pparatus for granulating powder-like material. 3,682,569, Cl. 425-78.000.
Vago, Frans; and Wolpert, Tadeusz, to Telefonaklubolaget LM Ericcson. Interruptor for ringing signals from automatic telephone exchanges. 3,683,118, Cl. 179-18.0hb.
Valayil, Sylvester Paul: *See—*
Kardos, Otto; Arcilesi, Donald Allan; Tomson, Arthur James; and Valayil, Sylvester Paul, 3,682,788.
Valdespino, Joseph M. Apparatus for liquid waste treatment and means for stripping same. 3,682,310, Cl. 210-140.000.
Van Besauw, Jan Frans; and Poot, Albert Lucien, to Gevaert-Agfa N.V. Manufacture of coloured colloid patterns. 3,682,635, Cl. 96-35.000.
Van Buskirk, Edward C.: *See—*
Adams, Gerald E.; and Van Buskirk, Edward C., 3,682,768.
Van den Bosch, Mathijs. Electrical switch having adjustable conductive-liquid level. 3,683,136, Cl. 200-61.470.
Van Der Lely, Ary; and Bom, Cornelis Johannes Gerardus. Spreading implements with means for varying and directing the flow of materials. 3,682,395, Cl. 239-666.000.
Van Der Wel, Hendrik: *See—*
Brouwer, Jan Nicolaas; Henning, Gerardus Johannes; and Van Der Wel, Hendrik, 3,682,880.
Van Dorn Company: *See—*
Baugh, John C.; Koenig, John E.; and Mc Cuskey, James R., 3,682,350.
Van Houtenlaan, Jan Carel, to U.S. Philips Corporation. Circuit arrangement comprising a plurality of separately energizable supraconductive coils. 3,683,200, Cl. 307-113.000.
Van Kai, Tran, to Thomson-CSF. Non-destructive read-out memory wire. 3,683,339, Cl. 340-174.0pw.
Van Loan, Paul R., to Air Reduction Company, Incorporated. Electrical resistor containing lead ruthenate. 3,682,840, Cl. 252-518.000.
van Nassau, Petrus J. M.: *See—*
Kaasenbrood, Petrus J. C.; and van Nassau, Petrus J. M., 3,682,911.
Van Weeren, Pieter A.: *See—*
Dun, Peter W.; and Van Weeren, Pieter A., 3,682,813.
Vanderfaeillie, Willy, to N.V. Bekaert S.A. Wire mesh and method of producing same. 3,682,419, Cl. 245-7.000.
Vanslette, Robert A.: *See—*
Karas, Edwin L.; Lee David S.; and Vanslette, Robert A., 3,681,998.
Varian Associates,: *See—*
Levin, Nathan D.; Niewold, Andreas; and Niklas, Wilfrid F., 3,683,194.
Varrati, Anthony J., to Universal Refractories Corporation. Transferring a hot top liner insert from a forming assembly to a dryer by a transfer table and a rollover table. 3,682,770, Cl. 162-399.000.
Vec/Track Research & Development Corporation: *See—*
Warren, Maurice A., 3,683,384.
Velkoff, Henry R., to Ohio State University, The. Control of frost formation in heat exchangers by means of electrostatic fields. 3,681,896, Cl. 55-107.000.
Veloz, Louis P. Sterilization of a fluid by ultraviolet radiation. 3,683,177, Cl. 250-43.000.
Veltman, Preston L.: *See—*
Patil, Arvind S.; Veltman, Preston L.; Loder, Edwin R.; Sabatelli, Philip M.; and Sarge, Carmen R., 3,682,190.
Venables, Herbert J., III, to Virables Machine and Tool Company, The. Squareness gauge. 3,681,849, Cl. 33-214.000.
Vepa AG: *See—*
Fleissner, Heinz, 3,681,946.
Fleissner, Heinz, 3,681,949.
Fleissner, Heinz, 3,681,950.
Verdier, Henri, to Compagnie Generale des Etablissements Michelin, raison sociale Michelin & Cie. Tread for wide tire. 3,682,220, Cl. 152-209.00d.
Vereinigte Flugtechnische Werke-Fokker GmbH: *See—*
Seidenfaden, Heinz, 3,681,834.
Vernier, Jacques. Process for continuously annealing aluminum strip. 3,682,712, Cl. 148-13.000.
Vertut, Jean: *See—*
Fedi, Leto; Meunier, Jean; and Vertut, Jean, 3,682,208.
Vesesojuznyi Projektno-Konstruktorskij Institut Technologii Elektrotechnichnickeskogo Proizodstva: *See—*
Kasatkin, Jury Ivanovich; Filimonov, Alexandr Vasilievich; Erlykov, Nikolai Sergeevich; Chikirda, Sergei Ivanovich; Strashinsky, Vadim Konstantinovich; and Zeldin, Vladimir Pinsokhovich, 3,681,833.
Vetter, Richard H., to United Artists Theatre Circuit, Inc. Focusing anamorphic optical system. 3,682,533, Cl. 350-181.000.
Vicra Sterile, Inc.: *See—*
Center, John L., 3,682,173.
Victor Company of Japan Ltd.: *See—*
Ibuchi, Kenji, 3,682,415.
Victor Insetta: *See—*
Mezey, Frank G. J., 3,681,828.
Victory Metal Manufacturing Corporation: *See—*
Heyer, John A., 3,683,153.
Vida, Julius A., to Kendall Company, The. Analgetic composition and method employing 1-morpholinomethyl-5-ethyl-5-phenyl barbituric acid. 3,683,083, Cl. 424-248.000.
Vidal, Jean: *See—*
Gomarin, Claude; and Vidal, Jean, 3,682,133.
Vigeant, George Henry; and Kloth, James Albert, to AMP Incorporated. Notched plate clasp apparatus. 3,683,319, Cl. 339-97.00r.
Vincent, David H.; and Johnson, Rodney L., to Art Metal -U.S. Corporation. Welded base for chair or the like. 3,682,425, Cl. 248-188.700.
Vincentsen, Barbara Egee: *See—*
Casler, Nancy Lee Cecile; and Vincentsen, Barbara Egee, 3,682,641.
Vincken, Leonardus M. J.; Agerbeek, Paul F.; and Hoekenga, Piet E., to Shell Oil Company. Method and apparatus for carrying out underwater well operations. 3,681,928, Cl. 61-46.500.
Virables Machine and Tool Company, The: *See—*
Venables, Herbert J., III, 3,681,849.
Virnelson, Robert Craig, to Buckeye Ribbon & Carbon Company. Resinous microporous transfer structure. 3,682,848, Cl. 260-2.50m.
Vissers, Donald R.; Holmes, John T.; Nelson, Paul A.; and Bartholme, Louis G., to United States of America, Atomic Energy Commission. Method and apparatus for determining hydrogen concentration in liquid sodium utilizing an ion pump to ionize the hydrogen.3,683,272, Cl. 324-33.000.
Vivian, Frank H., to Daybrook-Ottawa Corporation. Seat suspension system. 3,682,431, Cl. 248-400.000.
Vivian, Thomas A., to Dow Chemical Company, The. Reducing the residue caused by the vaporization of chlorinated solvent to dryness. 3,682,834, Cl. 252-364.000.
Vizzini, Thomas A.; and Grat, Felix R., to Radiation Machinery Corporation. Flow-through irradiator for the extra corporeal irradiation of fluid. 3,683,183, Cl. 250-44.000.
Vlahos, Petro, to System Development Corporation. Extended range sonar system. 3,683,325, Cl. 340-3.00r.
Vob, Alfred: *See—*
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Vogel, Ralph A., to Essex International, Inc. Structure for the continuous casting of metal bars. 3,682,234, Cl. 164-278.000.
Vogel, Walter H.: *See—*
Pringle, Frank E., Jr.; West, George Allan; Vogel, Walter H.; and Drake, Frederick R., 3,681,890.
Vogtlin, Karl; Holtz, Hermann; and Helmschrott, Norbert, to Kienzle Apparate GmbH. Tachographic measuring and indicating apparatus. 3,683,401, Cl. 346-18.000.
Vogue Instrument Corporation: *See—*
Shepard, Francis H., Jr., 3,683,110.
Volkers, Stewart W.: *See—*
Cade, Ronald L.; and Volkers, Stewart W., 3,682,538.
Vologdin, Vladislav Valentinovich: *See—*
Shepelyakovsky, Konstantin Zakharovich; Ushakov, Boris Konstantinovich; Devyatkin, Vasily Petrovich; Devyatkov, Vladimir Fedorovich; Shakhov, Vasily Ivanovich; Kachkanov, Nikolai Nikolaevich; Gazarov, Leon Alexandrovich; Pchelkina, Valentina Mikhailovna; Drbunov, Mikhail Alexandrovich; and Vologdin, Vladislav Valentinovich, 3,682,519.
Volu-Sol Chemical and Manufacturing Company, Inc.: *See—*
Smith, Anthony William, 3,682,321.
von der Heide, Elmer J., to Essex International, Inc., mesne. Rotational casting method. 3,683,062, Cl. 264-310.000.

von Gal, George E., Jr.; Phillips, Mabry S., Jr.; and Hutchinson, Lawrence A., to Litton Systems, Inc. Can palletizer. 3,682,290, Cl. 198-21.000.

Von Gal, George E., Jr.; Phillips, Mabry S.; and Hutchinson, Lawrence A. Combination depalletizer and palletizer. 3,682,338, Cl. 214-8.50d.

Von Struve, Georg; and Cappel, Fred, to Metallgesellschaft Aktiengesellschaft. Method of producing sponge-iron pellets from hematitic alumina-containing iron ore. 3,682,621, Cl. 75-3.000.

Vosbikian, Peter S., Jr. Mop holder. 3,681,810, Cl. 15-150.000359/042/1/8.

Vosper, Ralph R., to Coen Company, Inc. Duct burner for operation with liquid or gaseous fuels. 3,682,451, Cl. 263-19.00a.

Vsesojuzny Nauchno-Issledovatelsky Institut Leakogo i Textilnogo Mashinostroenia: *See—*
Korikovsky, Petr Konstantinovich; Kulichkov, Jury Semenovich; and Petukhov, Evgeny Dmitrievich, 3,681,909.

Vuillemeier, Ralph O.; and Bagnatori, Giulio B., to Container Corporation of America. Mechanism for erecting carton sleeves. 3,682,052, Cl. 93-53.00r.

Vyzkumny a vyvojovy ustov zavodu vseobecneho: *See—*
Buran, Vojtech; Kuba, Jaromir; Uncovsky, Adolf; and Zouhar, Karel, 3,683,178.

Vyzkumny Ustav Organickyck Syntez: *See—*
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Vyzkumny Ustav Pletarsky: *See—*
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Vzyatyshev, Viktor Feodosievich; Rozhkov, German Danilovich; Ryabov, Boris Ivanovich; and Udovenchik, Vasily Semenovich, to Moskovsky Ordena Lenina Energeticheskiy Institut. Super-high frequency transmission line. 3,683,299, Cl. 333-95.00s.

Wachenheim, Howard W., to Citizens and Southern National Bank, The. Liquid spring. 3,682,461, Cl. 267-31.000.

Wacker-Chemie GmbH: *See—*
Bauer, Johann; and Sabel, Alex, 3,682,874.

Wada, Shozo, to Tokyo Heat Treating Company. Method and apparatus for soot controlling in a thermal decomposition of a hydrocarbon gas. 3,682,605, Cl. 48-107.000.

Wada, Yasuhiro, to Kabushiki Kaisha Koparu. Electronic shutter for single-lens reflex camera. 3,682,058, Cl. 95-10.0st.

Waede, Werner: *See—*
Radscheit, Kurt; Stache, Ulrich; Fritsch, Werner; and Waede, Werner, 3,682,987.

Wagner electric Corporation: *See—*
Rock, William A., 3,683,399.

Wagner, Gerhard; Kroll, Friedrich; Gleich, Horst; and Kessler, Georg, to Klochner Humboldt-Deutz Aktiengesellschaft. Amphibious bridge vehicle. 3,682,126, Cl. 115-1.00b.

Wagner, Winfried: *See—*
Ohnsorge, Horst; and Wagner, Winfried, 3,683,278.

Wagnerberger, Wolfgang: *See—*
Dorsch, Gerhard; and Wagnerberger, Wolfgang, 3,683,340.

Wakamatsu, Hachiro; Okami, Taketoshi; and Sato, Jiro, to Ajinomoto Co., Inc. 2-Aminoeicosanedioic acids. 3,683,019, Cl. 260-534.00e.

Wake, Makoto: *See—*
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Walczak, Zbigniew K.: *See—*
Meyer, Richard D.; and Walczak, Zbigniew K., 3,681,852.

Waldmann, Hermann: *See—*
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Waldvogel, Erwin: *See—*
Bourquin, Jean-Pierre; Schwarb, Gustav; and Waldvogel, Erwin, 3,682,930.

Walford, Gordon L.: *See—*
Shen, Tsung-Ying; Witzel, Bruce E.; and Walford, Gordon L., 3,682,968.

Walk, Georg: *See—*
Reiners, Franz; and Walk, Georg, 3,682,025.

Walker, Alfred C. Method and apparatus for reinforcing threaded connections under dynamic load. 3,682,440, Cl. 254-29.00a.

Walker, Norman E. Exercise device having foot restraining means. 3,682,475, Cl. 272-58.000.

Wallace, Clifford G.: *See—*
Butler, Fred C.; Johnson, Nathaniel M.; and Wallace, Clifford G., 3,683,302.

Walsh, William L.: *See—*
Hay, Russell G.; Murphy, Clarence R.; and Walsh, William L., 3,683,037.

Walstad, Dennis C.; and Knope, Walter R., to Furnas Electric Company. Adjustable solid state overload relay. 3,683,237, Cl. 317-13.00r.

Walton, Fred D.: *See—*
Shamash, Maurice B.; Staley, William W.; Denton, Charles I.; and Walton, Fred D., 3,683,105.

Walup, William B., to Cambridge Thermionic Corporation. Minimal insertion force connector. 3,683,317, Cl. 339-75.0mp.

Walz, Klaus,; Hees, Walter; and Quaedvlieg, Mathieu, to Farbenfabriken Bayer Aktiengesellschaft. Compounds containing sulphonic acid groups. 3,683,013, Cl. 260-512.00r.

Wanlass, Sylvan D., to Wanless Electric Company. Parametric voltage regulator with high power transfer capacity. 3,683,269, Cl. 323-44.00r.

Wanless Electric Company: *See—*
Wanlass, Sylvan D., 3,683,269.

Waquet, Bernard Edmond Louis Marie. Amphibious vehicle with rotating floats. 3,682,127, Cl. 115-19.000.

Ward, Leonard, Electric Co., Inc.: *See—*
Thode, Herbert William, 3,683,198.

Waren, Frank Arthur Oakley. Apparatus for the collection of buoyant foreign matter. 3,682,316, Cl. 210-242.000.

Warren, Maurice A., to Vec/Track Research & Development Corporation. Radio direction finder. 3,683,384, Cl. 343-113.0pt.

Warshaw, Saul; Eisenberg, Arnold J.; and Loveland, Winton, to Loveshaw Corporation. Single motor drive of forming winder collet. 3,683,246, Cl. 318-6.000.

Wasser, Willi: *See—*
Herzhoff, Peter; Gref, Hans; Maus, Fritz; Wasser, Willi; Browatzki, Kurt; Friedsam, Josef; and Schweicher, Wolfgang, 3,682,679.

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Kasper, George P., and Taylor. T901,019.

Vernick, Barry H., to Hercules Inc. Composition comprised of ultra high molecular weight polyethylene containing carbon black. T901,021, 8–8–72, Cl. 260—41.

LIST OF PLANT PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 8TH DAY OF AUGUST, 1972

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

Duffett, William E.: *See*—
Harcharik, Thomas G., and Duffett. 3,252.
Jessel, Walter H., Jr., and Duffet. 3,250.

Harcharik, Thomas G., and W. E. Duffett, to Yoder Brothers, Inc. Carnation plant. 3,252. 8–8–72, Cl. 70.

Jessel, Walter H., Jr., and W. E. Duffett, to Yoder Brothers, Inc. Chrysanthemum plant. 3,250, 8–8–72, Cl. 78.

Larus, Charles T.: *See*—
Larus, John R., and Larus. 3,253.

Larus, John R., and C. T. Larus, to Selected Glads, Inc. New and distinct variety of gladiolus. 3,253, 8–8–72, Cl. 85.

Matzkau, Henry, to Yoder Brothers, Inc. Azalea plant. 3,251, 8–8–72, Cl. 57.

Selected Glads, Inc.: *See*—
Larus, John R., and C. T. 3,253.

Yoder Brothers, Inc.: *See*—
Harcharik, Thomas G., and Duffett. 3,252.
Jessel, Walter H., Jr., and Duffett. 3,250.
Matzkau, Henry. 3,251.

LIST OF DESIGN PATENTEES

Alter, Hobart L., to Coast Catamaran Corp. Catamaran sailboat. 224,606, 8–8–72, Cl. D71—1.

American Technical Industries, Inc.: *See*—
Gelardi, Joseph T. 224,598.

Bauer, James J., to Clark Equipment Co. Self-propelled loader vehicle. 224,588, 8–8–72, Cl. D14—3.

Baxter Laboratories, Inc.: *See*—
Huggins, James A. 224,604.

Bethune, Ade, to Terra-Sancta Creations, Inc. Pendant. 224,599, 8–8–72, D29—19.

Bixler, Loring C., A. M. Davis, D. F. Lahey, W. S. McCormick, Jr., and E. R. Wiener, to International Business Machines Corp. Printer. 224,605, 8–8–72, Cl. D64—1.

Brian, William John.: *See*—
Eves, Randal Munster and Brian. 224,594.

Callegaro, Giancarlo.: *See*—
Parpaiola, Danilo, and Callegaro. 224,584.

Chow, Howard T., to Compact Investment and Leasing Co. Travel trailer. 224,589, 8–8–72, Cl. D14—3.

Clark Equipment Co.: *See*—
Bauer, James J. 224,588.

Coast Catamaran Corp.: *See*—
Alter, Hobart L. 224,606.

Cogar Corp.: *See*—
Sours, William A. 224,597.

Compact Investment and Leasing Co.: *See*—
Chow, Howard T. 224,589.

Cone, Richard E., to The Delphos Bending Co. Child's rocking toy. 224,601, 8–8–72, Cl. D34—15.

Davis, Arnold M.: *See*—
Bixler, Loring C., Davis, Lahey, McCormick, Jr., and Wiener. 224,605.

Delphos Bending Co., The: *See*—
Cone, Richard E. 224,601.

Dougherty, James R. Teeth cleaning apparatus. 224,595, 8–8–72, Cl. D24—1.

Earl, T. to Textron Inc. Aircraft. 224,607, 8–8–72. Cl. D71—1.

Eves, Randal Munster, and W. J. Brian, to Munster Simms Engineering Limited. Manually operated diaphragm pump. 224,594, 8–8–72, Cl. D23—14.

Fagioli, Louis J. Jacket or similar article. 224,582, 8–8–72, Cl. D2—183.

Fisher, Morris F., to Mohasco Industries, Inc. Chair. 224,590, 8–8–72, Cl. D15—1.

Fudge, William L., to Larsen's Manufacturing Co. Fire extinguisher cabinet. 224,592, 8–8–72, Cl. D16—2.

Gelardi, Joseph T., to American Technical Industries, Inc. Christmas tree. 224,598, 8–8–72, Cl. D29—1.

Glaberson, Martin, and R. J. Gould, to Warner-Lambert Co. Hot lather dispenser. 224,600, 8–8–72, Cl. D33—30.

Glaberson, Martin.: *See*—
Gould, Robert J. and Glaberson. 224,600.

Hames, Lester D. Ear covering. 224,583, 8–8–72, Cl. D42—259.

Huggins, James A., to Baxter Laboratories, Inc. Gas flowmaster. 224,604. 8–8–72, Cl. D52—6.

International Business Machines Corp.: *See*—
Bixler, Loring C., Davis, Lahey, McCormick, Jr., and Wiener. 224,605.

Ives Laboratories Inc.: *See*—
Roberts, Edwin F. 224,591.

Jewell, Donald K., to Lincoln Manufacturing Co., Inc. Food packaging tray. 224,585, 8–8–72, Cl. D9—185.

Jewell, Donald K., to Lincoln Manufacturing Co., Inc. Food packaging tray. 224,586, 8–8–72, Cl. D9—185.

Jewell, Donald K., to Lincoln Manufacturing Co., Inc. Food packaging tray. 224,587, 8–8–72, Cl. D9—219.

Lahey, Donald F.: *See*—
Bixler, Loring C., Davis, Lahey, McCormick and Wiener. 224,605.

Larsen's Manufacturing Co.: *See*—
Fudge, William L. 224,592.

Lincoln Manufacturing Co., Inc.: *See*—
Jewell, Donald K. 224,585.
Jewell, Donald K. 224,586.
Jewell, Donald K. 224,587.

McCormick, Walter S., Jr.: *See*—
Bixler, Loring C., Davis, Lahey, McCormick and Wiener. 224,605.

Mohasco Industries, Inc.: *See*—
Fisher, Morris F. 224,590.

Munster Simms Engineering Limited: *See*—
Eves, Randal Munster, and Brian. 224,594.

Okuhara, Hideno N., and H. L. Okuhara. Mirrored cosmetic container. 224,608, 8–8–72, Cl. D86—10.

Okuhara, Hiroko L.: *See*—
Okuhara, Hideno N., and Okuhara. 224,608.

Parpaiola, Danilo, and G. Callegaro. Lacing hook. 224,584, 8–8–72, Cl. D2—418.

Poon, Yuen Sang. Link chain for a bracelet or similar article. 224,602, 8–8–72, Cl. D45—4.
Roberts, Edwin F., to Ives Laboratories Inc. Easy break tablet. 224,591, 8–8–72, Cl. D16—1.
Sours, William A., to Cogar Corp. Casing for an electronic data terminal. 224,597, 8–8–72, Cl. D26—5.
Square D Co.: *See*—
Winfrey, James E., and Orr. 224,596.
Storm, William D. Fishing lure. 224,593, 8–8–72, Cl. D22—28.
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Textron Inc.: *See*—
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Warner-Lambert Co.: *See*—
Glaberson, Martin, and Gould. 224,600.
Weltz, Nathan. Attache case. 224,609, 8–8–72, Cl. D87—5.
Wetzel, Guy N. Scraper tool. 224,603, 8–8–72, Cl. D49—23.
Wiener, Edward R.: *See*—
Bixler, Loring C., Davis, Lahey, McCormick, and Wiener. 224,605.
Winfrey, James E., and W. H. Orr, to Square D Co. Voltage tester casing. 224,596, 8–8–72, Cl. D26—1.

CLASSIFICATION OF PATENTS

ISSUED AUGUST 8, 1972

NOTE.—First number, class; second number, subclass; third number, patent number

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1 3,681,786
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177 3,681,789
216 3,681,790
257 3,681,791

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81 3,681,793
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334C 3,681,795
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203MM 3,681,833
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362AR 3,681,991
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10ST 3,682,058
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227 3,682,767
253 3,682,768
262 3,682,769

CLASS 162

399 3,682,770

CLASS 164

58 3,682,229
94 3,682,227
124 3,682,228
165 3,682,230
198 3,682,231
274 3,682,233
278 3,682,234
283 3,682,235
324 3,682,236
326 3,682,232

CLASS 165

1 3,682,237
3,682,238
3,682,239
42 3,682,240
136 3,682,241

CLASS 166

.5 3,682,242
.6 3,682,243
252 3,682,244
270 3,682,245
271 3,682,246
273 3,682,247
275 3,682,248
305R 3,682,249

CLASS 169

5 3,682,250
37 3,682,251

CLASS 172

198 3,682,252

CLASS 173

23 3,682,253
49 3,682,254
73 3,682,255

CLASS 174

38 3,683,099
48 3,683,100
49 3,683,101
50 3,683,102
68.5 3,683,105
116 3,683,104
119C 3,683,103

CLASS 175

40 3,682,256
61 3,682,257
85 3,682,259
92 3,682,260
96 3,682,258
122 3,682,261
205 3,682,262

CLASS 176

35 3,682,771
40 3,682,775
54 3,682,772
75 3,682,773
87 3,682,774

CLASS 177

1 3,682,263

CLASS 178

5.2R 3,683,106
5.4CD 3,683,107
6 3,683,111
7.2 3,683,108
7.85 3,683,109
17C 3,683,110

CLASS 179

1A 3,683,112
1R 3,683,113
5 3,683,114
15AQ 3,683,116
15BF 3,683,115
15BT 3,683,119
15A 3,683,120
18GF 3,683,117
18HB 3,683,118
84C 3,683,121
84R 3,683,122
100.2CH 3,683,127
100.2C 3,683,125
3,683,126
100.2E 3,683,123
3,683,124
100.2K 3,683,131
100.41K 3,683,128
110A 3,683,129
156 3,683,130

CLASS 180

6R 3,682,264
9.2R 3,682,265
9.62 3,682,266
114 3,682,267

CLASS 181

31R 3,682,268
33HC 3,682,269
54 3,682,270

CLASS 182

152 3,682,271
155 3,682,272

CLASS 184

27A 3,682,273
55A 3,682,274

CLASS 187

29 3,682,275

CLASS 188

65.3 3,682,276
73.3 3,682,277
112 3,682,278
171 3,682,279
265 3,682,280
3,682,281

CLASS 192

48.91 3,682,282
141 3,682,283

CLASS 193

35MD 3,682,284

CLASS 194

10 3,682,285
100A 3,682,286

CLASS 195

1.7 3,682,776
36P 3,682,777
66R 3,682,778

CLASS 197

49 3,682,287

CLASS 198

7 3,682,288
16 3,682,289
21 3,682,290
30 3,682,291
33AA 3,682,293
33AD 3,682,292
192A 3,682,294
203 3,682,295
210 3,682,296

CLASS 200

11R 3,683,132
44 3,683,133
48R 3,683,134
56R 3,683,135
61.47 3,683,136
83B 3,683,137
144B 3,683,138
3,683,139
146R 3,683,140
148B 3,683,141
148R 3,683,142
162 3,683,143
166J 3,683,144
167R 3,683,145

CLASS 203

7 3,682,779
22 3,682,780
60 3,682,781
91 3,682,782

CLASS 204

1T 3,682,783
15 3,682,784
3,682,785
30 3,682,786
37R 3,682,787
52R 3,682,788
55R 3,682,789
58 3,682,790
59R 3,682,791
73A 3,682,792
3,682,793
73R 3,682,794
97 3,682,796
99 3,682,797
108 3,682,798
129.05 3,682,799
159 3,682,801
159.15 3,682,802
3,682,808
159.23 3,682,800
162HE 3,682,804
162R 3,682,803
163R 3,682,805
181 3,682,806
3,682,814
188 3,682,807
192 3,682,795
275 3,682,809
290F 3,682,810

CLASS 206

45.14 3,682,297
45.31 3,682,298
50 3,682,816

CLASS 208

38.09 3,682,812
59 3,682,813
111 3,682,811
314 3,682,815

CLASS 209

17 3,682,299
80.5 3,682,300
85 3,682,301
139R 3,682,302
243 3,682,303
443 3,682,304

CLASS 210

22 3,682,817
30 3,682,818
83 3,682,305
96 3,682,306
123 3,682,307
136 3,682,308
138 3,682,309
140 3,682,310
169 3,682,311
189 3,682,312
195 3,682,313
199 3,682,314
233 3,682,315
242 3,682,316
3,682,317
321 3,682,318
333 3,682,319
444 3,682,320
477 3,682,321
530 3,682,322

CLASS 211

74 3,682,323

CLASS 212

198 3,682,523

CLASS 213

8 3,682,324
211 3,682,325

CLASS 214

1BC 3,682,327
1SW 3,682,326
6H 3,682,328
7 3,682,329
8.5D 3,682,338
15D 3,682,330
16.4R 3,682,331
35R 3,682,339
41 3,682,332
75G 3,682,334
82 3,682,333
3,682,335
83.3 3,682,336
152 3,682,337
3,682,340
305 3,682,341
653 3,682,342

CLASS 215

9 3,682,343
11R 3,682,344
43R 3,682,345

CLASS 219

85 3,683,146
117R 3,683,147
137 3,683,148
3,683,149
200 3,683,150
212 3,683,151
213 3,683,152
275 3,683,153
412 3,683,154
521 3,683,155

CLASS 220

9A 3,682,346
16 3,682,347
32 3,682,348
42E 3,682,349
54 3,682,350
94 3,682,352
97B 3,682,351

CLASS 221

277 3,682,353

CLASS 222

3 3,682,354
94 3,682,355
132 3,682,356

CLASS 224

1B 3,682,357
5R 3,682,358
26R 3,682,359
42.05 3,682,360

CLASS 225

60 3,682,361

CLASS 226

21 3,682,362
118 3,682,363

CLASS 227

9 3,682,364

CLASS 229

2.5 3,682,365
7R 3,682,366
15 3,682,367
23R 3,682,368
35 3,682,369
40 3,682,370
53 3,682,371
55 3,682,372

CLASS 233

1C 3,682,373
47R 3,682,374

CLASS 235

50A 3,682,375
58P 3,682,376
60.46 3,682,377
61.11C 3,683,156
61.7B 3,683,157
70B 3,683,158
92EA 3,683,159
101 3,682,378
137A 3,682,379
151.13 3,683,160
151.21 3,683,161
156 3,683,162
173 3,683,163
181 3,683,164
194 3,683,165
200 3,683,166

CLASS 236

34.5 3,682,380
38 3,682,381
48R 3,682,382

CLASS 238

171 3,682,383

CLASS 239

15 3,682,384
25 3,682,386
29 3,682,385
67 3,682,387
222.17 3,682,388
222.21 3,682,389
399 3,682,390
410 3,682,391
428.5 3,682,392
651 3,682,393
665 3,682,394
666 3,682,395

CLASS 240

1 3,683,167
2ME 3,683,168
6.4R 3,683,169
41.36 3,683,170
78HA 3,683,173
78F 3,683,171
84 3,683,172
103 3,683,174
108R 3,683,175

CLASS 241

41 3,682,396
46R 3,682,397
46.17 3,682,398
50 3,682,399
56 3,682,400
100 3,682,402
195 3,682,401

CLASS 242

18A 3,682,403
35.5R 3,682,404
55 3,682,405
55.2 3,682,406
67.3 3,682,407
71.1 3,682,408
71.8 3,682,409
75.53 3,682,410
84.2R 3,682,411
107.4 3,682,412
156.2 3,682,413
190 3,682,414
197 3,682,415

CLASS 244

17.11 3,682,416

77D 3,682,417
136 3,682,418

CLASS 245

7 3,682,419

CLASS 246

40 3,683,176

CLASS 248

48 3,682,421
68CB 3,682,422
119 3,682,423
162 3,682,424
188.7 3,682,425
225 3,682,426
294 3,682,427
309 3,682,428
313 3,682,429
317 3,682,430
361R 3,682,420
3,682,432
400 3,682,431
459 3,682,433

CLASS 249

48 3,682,434
204 3,682,435

CLASS 250

43 3,683,177
43.5FC 3,683,178
44 3,683,183
49.5TE 3,683,179
52 3,683,181
67 3,683,182
71.5R 3,683,185
71.5S 3,683,180
3,683,184
83.3D 3,683,186
3,683,187
3,683,188
83.6R 3,683,189
84.5 3,683,190
93 3,683,191
209 3,683,193
213VT 3,683,194
216 3,683,192
219DR 3,683,195
227 3,683,196

CLASS 251

30 3,682,436
61.2 3,682,437
256 3,682,438
315 3,682,439

CLASS 252

8.5C 3,682,820
3,682,821
32.7E 3,682,819
3,682,822
59 3,682,823
62 3,682,824
62.1 3,682,825
62.9 3,682,826
3,682,827
63.2 3,682,828
99 3,682,829
171 3,682,830
180 3,682,831
182 3,682,832
301.6R 3,682,833
364 3,682,834
408 3,682,835
437 3,682,836
3,682,837
464 3,682,838
508 3,682,839
518 3,682,840
3,682,841
539 3,682,842
546 3,682,843

CLASS 254

29A 3,682,440
93 3,682,441
150 3,682,442

CLASS 259

4 3,682,443
6 3,682,444
8 3,682,445
10 3,682,446
26 3,682,447
148 3,682,448

CLASS 260

2.5AP 3,682,845
2.5B 3,682,844
2.5M 3,682,848
2.5N 3,682,846
3,682,847
17R 3,682,850
17.4GC 3,682,856
19U 3,682,851
23XA 3,682,853
28.5D 3,682,924
29.1R 3,682,854
30.2R 3,682,855
32.6N 3,682,960
33.8UA 3,682,857
40R 3,682,858
41AG 3,682,859
47CB 3,682,860
3,682,861
47EN 3,682,852
58 3,682,862
75EP 3,682,865
75R 3,682,863
3,682,864
77.5CH 3,682,867
78P 3,682,869
78R 3,682,866
78.5T 3,682,868
80.7 3,682,870
80.71 3,682,871
80.76 3,682,872
85.5R 3,682,873
87.5C 3,682,874
89.5R 3,682,875
91.5 3,682,876
92.8W 3,682,877
94.9DA 3,682,878
96.5R 3,682,879
112B 3,682,881
112R 3,682,880
209.5 3,682,882
210AB 3,682,886
210R 3,682,883
3,682,884
3,682,885
211.5R 3,682,887
239AA 3,682,889
239BD 3,682,892
239B 3,682,890
239E 3,682,893
239.1 3,682,896
239.3D 3,682,888
239.3T 3,682,897
239.5 3,682,898
239.57 3,682,891
3,682,894
3,682,895
240CA 3,682,900
240B 3,682,907
240D 3,682,901
240F 3,682,899
243B 3,682,902
243C 3,682,903
247.1 3,682,905
247.5R 3,682,906
248AS 3,682,910
248CS 3,682,908
248NS 3,682,909
249.7A 3,682,911
249.9 3,682,912
250A 3,682,914
3,682,915
251R 3,682,916
256.4F 3,682,918
256.4N 3,682,913
260 3,682,917
268BQ 3,682,920
268PC 3,682,922
268SY 3,682,919
268TR 3,682,921
283SY 3,682,928
285 3,682,925
287R 3,682,927
287 3,682,926
288R 3,682,929
293.5T 3,682,930
294.8K 3,682,931
294.8R 3,682,939
295F 3,682,933
295.5D 3,682,934
295.5R 3,682,932
296B 3,682,935
297R 3,682,936
3,682,937
3,682,938
299 3,682,923
302 3,682,940
304 3,682,941
306.7 3,682,943
3,682,944
306.8D 3,682,942
306.8F 3,682,945
307D 3,682,946
307F 3,682,947
3,682,948
308R 3,682,950
309 3,682,949
3,682,951
309.2 3,682,952
310A 3,682,954
310C 3,682,958
310R 3,682,953
3,682,955
3,682,956
310 3,682,957
326D 3,682,966
326.13R 3,682,961
326.84 3,682,965
326.9 3,682,959
327TH 3,682,964
327B 3,682,962
327M 3,682,970
327R 3,682,963
330.5 3,682,967
332.2A 3,682,968
338 3,682,969
340.5 3,682,973
343.2R 3,682,971
345.2 3,682,972
346.2R 3,682,976
346.8 3,682,974
348SC 3,682,975
349 3,682,977
372 3,682,978
393 3,682,979
396N 3,682,981
396R 3,682,980
3,682,982
397.3 3,682,983
397.4 3,682,984
3,682,985
397.45 3,682,986
397.47 3,682,987
403 3,682,988
410 3,682,989
410.5 3,682,990
413 3,682,991
414 3,682,992
428.5 3,682,993
438.1 3,682,994
3,682,995
448C 3,682,996
453R 3,682,997
456P 3,682,999
456R 3,682,998
463 3,683,000
465D 3,683,001
465.5R 3,683,002
465.8R 3,683,003
465.9 3,683,004
468B 3,683,006
3,683,007
468P 3,683,005
477 3,683,008
479R 3,683,009
501.16 3,683,010
502.5 3,683,011
512R 3,683,013
513N 3,683,014
520 3,683,015
524R 3,683,016
3,683,017
3,683,018
534E 3,683,019
558R 3,683,020
561A 3,683,021
561R 3,683,022
562R 3,683,012
564F 3,683,023
566AE 3,683,024
575 3,683,025
583B 3,683,026
594 3,683,027
606.5P 3,683,028
612R 3,683,029
613D 3,683,030
3,683,031
613R 3,683,032
615B 3,682,849
619D 3,683,033
620 3,683,034
624R 3,682,904
631B 3,683,035
648F 3,683,036
663 3,683,037
666PY 3,683,038
3,683,039
668R 3,683,040
671B 3,683,043
680E 3,683,042
683.46 3,683,041
830TW 3,683,044
837R 3,683,045
857TW 3,683,046
3,683,047
868 3,683,048
876R 3,683,049
3,683,050
878R 3,683,051
879 3,683,052
950 3,683,053
953 3,683,054

CLASS 261

23A 3,682,449
41D 3,682,450

CLASS 263

19A 3,682,451
32R 3,682,452
33R 3,682,453

CLASS 264

25 3,683,055
112 3,683,056
140 3,683,057
156 3,683,058
167 3,683,059
289 3,683,060
310 3,683,062
317 3,683,061
332 3,683,063

CLASS 266

23NN 3,682,455
23T 3,682,454
24 3,682,456
25 3,682,457
33R 3,682,458
34R 3,682,459
35 3,682,460

CLASS 267

31 3,682,461
34 3,682,462
63 3,682,463
65 3,682,464
130 3,682,465
161 3,682,466

CLASS 269

88 3,682,467

CLASS 270

52 3,682,468

CLASS 271

12 3,682,469
27 3,682,470
29 3,682,471
53 3,682,472
68 3,682,473

CLASS 272

1D 3,682,474
58 3,682,475

CLASS 273

25 3,682,476
86B 3,682,477
102.2S 3,682,478
157R 3,682,479

CLASS 274

4B 3,682,486
4F 3,682,480
3,682,483
4H 3,682,482
4J 3,682,481
7 3,682,484
23R 3,682,485
42R 3,682,487

CLASS 277

37 3,682,488
53 3,682,489
102 3,682,490

CLASS 279

1 3,682,491
5 3,682,492
9 3,682,493

CLASS 280

11.13D 3,682,496
11.35T 3,682,494
12.14 3,682,495
150AB 3,682,498
150R 3,682,499
150.5 3,682,497

CLASS 285

7 3,682,500
114 3,682,501
235 3,682,502
345 3,682,503

CLASS 287

49 3,682,504
52.06 3,682,505
108 3,682,506
189.36F 3,682,507
3,682,508

CLASS 297

195 3,682,509

CLASS 300

21 3,682,510

CLASS 302

14 3,682,511

CLASS 303

20 3,682,512
21BE 3,682,515
21F 3,682,513
3,682,514

CLASS 306

30 3,682,516

CLASS 307

10R 3,683,197
66 3,683,198
87 3,683,199
113 3,683,200
205 3,683,201
3,683,202
221C 3,683,203
225R 3,683,204
225 3,683,207
230 3,683,205
279 3,683,206
296 3,683,208

CLASS 308

10 3,682,517
168 3,682,518
212 3,682,519
214 3,682,520

CLASS 310

4 3,683,209
8.1 3,683,210
8.2 3,683,211
8.3 3,683,212
9.6 3,683,213
10 3,683,214
11 3,683,215
67 3,683,216
77 3,683,217
80 3,683,218
168 3,683,219
183 3,683,220
258 3,683,221

CLASS 312

138A 3,682,521
198 3,682,522
330 3,682,524

CLASS 313

51 3,683,222
60 3,683,223
78 3,683,224
92SC 3,683,225
109 3,683,226
3,683,227
318 3,683,228
350 3,683,229

CLASS 315

12 3,683,230
26 3,683,231
58 3,683,232
156 3,683,233
238 3,683,234
534 3,683,235

CLASS 316

26 3,682,525

CLASS 317

3 3,683,236
13R 3,683,237
118 3,683,238
150 3,683,239
234R 3,683,240
234 3,683,241
235R 3,683,242
246 3,683,243
261 3,683,244
3,683,245

CLASS 318

6 3,683,246
45 3,683,247
138 3,683,248
205 3,683,249
221E 3,683,250
237 3,683,251
331 3,683,252
3,683,253
608 3,683,254

CLASS 320

2 3,683,255
14 3,683,256
31 3,683,257
61 3,683,258
68 3,683,259

CLASS 321

3 3,683,260
5 3,683,261
3,683,262
14 3,683,264
44 3,683,265
3,683,266
45R 3,683,263
3,683,267

CLASS 322

20 3,683,268

CLASS 323

4 3,683,270
44R 3,683,269
76 3,683,271

CLASS 324

33 3,683,272
34R 3,683,273
58R 3,683,274
115 3,683,275
137 3,683,276

CLASS 325

30 3,683,277
42 3,683,278
63 3,683,279
116 3,683,280
312 3,683,281
363 3,683,282

CLASS 328

5 3,683,283
117 3,683,284
133 3,683,285
143 3,683,286
233 3,683,287

CLASS 329

104 3,683,288

CLASS 330

15 3,683,289
3,683,290
17 3,683,291
29 3,683,292
31 3,683,293

CLASS 331

65 3,683,294
94.5 3,683,295
3,683,296
3,683,297
3,683,300
107R 3,683,298

CLASS 333

95S 3,683,299

CLASS 335

59 3,683,301

CLASS 336

83 3,683,302
96 3,683,303

CLASS 337

347 3,683,304
359 3,683,305

CLASS 338

7 3,683,306
99 3,683,307
162 3,683,308
214 3,683,309
322 3,683,361

CLASS 339

8L 3,683,310
14R 3,683,311
21R 3,683,312
22B 3,683,313
39 3,683,314
42 3,683,315
72 3,683,316
75MP 3,683,317
95R 3,683,318
97R 3,683,319
114 3,683,331
177E 3,683,320
217R 3,683,321
255R 3,683,322
272UC 3,683,414

CLASS 340

3R 3,683,323
3,683,324
3,683,325
15.5SW 3,683,326
31A 3,683,327
32 3,683,328
71 3,683,329
107 3,683,330
146.2 3,683,332
146.3Z 3,683,333
147C 3,683,415
172.5 3,683,334
173CC 3,683,337
173LS 3,683,336
173R 3,683,335
173.2 3,683,338
174PW 3,683,339
174SP 3,683,340
3,683,342
174.1G 3,683,341
174.1R 3,683,413
178 3,683,343
199 3,683,344
207P 3,683,345
213R 3,683,346
244R 3,683,347
253A 3,683,350
258B 3,683,352
258C 3,683,351
258D 3,683,349
261 3,683,353
271 3,683,354
272 3,683,355
279 3,683,356
322 3,683,362
323 3,683,357
3,683,363
324A 3,683,358
3,683,359
3,683,360
324R 3,683,364
325 3,683,365
3,683,366
347AD 3,683,367
3,683,369
347P 3,683,368
365 3,683,370
3,683,371
410 3,683,372

CLASS 343

5DP 3,683,373
5PD 3,683,375
3,683,376
5W 3,683,377
6.5R 3,683,374
7ED 3,683,378

	3,683,379
16R	3,683,380
17.7	3,683,381
103	3,683,383
113PT	3,683,384
113R	3,683,385
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41 : 3,681,808
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42 : 3,681,793
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3,683,255
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3,683,369
44 : 3,681,832
3,682,217
3,682,731
3,683,311
45 : 3,681,969
3,682,403
46 : 3,682,303
3,682,627
47 : 3,681,852

3,682,036	3,682,248	3,683,188	50 : 3,682,809	3,682,387	3,682,155
3,682,509	3,682,255	3,683,242	51 : 3,681,980	3,682,575	3,682,191
3,682,755	3,682,258	3,683,250	3,682,166	3,682,589	3,682,216
3,682,761	3,682,307	3,683,288	3,682,274	3,682,790	3,682,227
48 : 3,681,788	3,682,347	3,683,296	3,682,295	3,683,143	3,682,279
3,681,864	3,682,357	3,683,326	3,682,430	54 : 3,681,869	3,682,336
3,681,897	3,682,375	3,683,337	3,682,532	55 : 3,681,786	3,682,355
3,681,926	3,682,388	3,683,346	3,682,592	3,681,795	3,682,467
3,681,953	3,682,594	3,683,368	3,682,645	3,681,805	3,682,567
3,681,996	3,682,711	3,683,372	3,682,676	3,681,837	3,682,636
3,681,997	3,682,724	3,683,390	3,683,109	3,681,890	3,682,709
3,682,085	3,682,810	3,683,398	3,683,116	3,681,892	3,682,722
3,682,115	3,682,831	3,683,402	3,683,247	3,681,898	3,682,734
3,682,125	3,682,850	3,683,404	3,683,281	3,681,904	3,682,735
3,682,168	3,682,990	3,683,408	52 : 3,681,833	3,681,984	3,682,770
3,682,169	3,683,024	3,683,416	53 : 3,681,848	3,682,015	3,682,856
3,682,173	3,683,042	49 : 3,681,816	3,681,865	3,682,021	3,682,921
3,682,186	3,683,045	3,682,798	3,682,120	3,682,094	3,682,967
3,682,187	3,683,186	3,683,106	3,682,326	3,682,106	3,683,252
3,682,219	3,683,187	3,683,203	3,682,333	3,682,147	3,683,301
3,682,244					3,683,322
					3,683,356

DESIGN PATENTS

6 : 224,589	224,587	25 : 224,582	224,600	37 : 224,596	40 : 224,583
224,606	224,604	27 : 224,592	224,605	38 : 224,588	224,593
9 : 224,591	224,608	36 : 224,597	224,607	39 : 224,601	224,595
17 : 224,585	18 : 224,590	224,598	224,609	224,603	44 : 224,599
224,586					

PLANT PATENTS

6 : 3,252	9 : 3,253	39 : 3,250	55 : 3,251	

DEFENSIVE PUBLICATIONS APPLICATIONS

[Notice of Dec. 16, 1969, 869 O.G. 6877]

1 : T901,023	T901,021	36 : T901,017	T901,025	47 : T901,020	T901,024
10 : T901,018	T901,022	T901,019			

U.S. GOVERNMENT PRINTING OFFICE: 0—1972

U. S. DEPARTMENT OF COMMERCE
Peter G. Peterson, Secretary

PATENT OFFICE
Robert Gottschalk, Commissioner